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# **IAEA SAFETY STANDARDS**

**for protecting people and the environment**

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## **Leadership and Management for Safety**

**Draft General Safety Requirements**

**No. GSR Part 2**

**DS456**

## CONTENTS

<b>1. INTRODUCTION</b>	1
BACKGROUND	1
OBJECTIVE	3
SCOPE	4
STRUCTURE	5
<b>2. RESPONSIBILITY FOR SAFETY</b>	5
<b>Requirement 1: Achieving the fundamental safety objective</b>	5
<b>3. LEADERSHIP FOR SAFETY</b>	6
<b>Requirement 2: Demonstration of leadership for safety by managers</b>	6
<b>4. MANAGEMENT FOR SAFETY</b>	8
<b>Requirement 3: Responsibility of senior management for the management system</b>	8
<b>Requirement 4: Goals, strategies, plans and objectives</b>	8
<b>Requirement 5: Interaction with interested parties</b>	8
<b>Requirement 6: Integration of the management system</b>	9
<b>Requirement 7: Application of the graded approach to the management system</b>	10
<b>Requirement 8: Documentation of the management system</b>	10
MANAGEMENT OF RESOURCES	11
<b>Requirement 9: Provision of resources</b>	11
MANAGEMENT OF PROCESSES AND ACTIVITIES	12
<b>Requirement 10: Management of processes and activities</b>	12
<b>Requirement 11: Management of the supply chain</b>	13
<b>5. CULTURE FOR SAFETY</b>	14
<b>Requirement 12: Fostering a culture for safety</b>	14
<b>6. MEASUREMENT, ASSESSMENT AND IMPROVEMENT</b>	15
<b>Requirement 13: Measurement, assessment and improvement of the management system</b>	15
<b>Requirement 14: Measurement, assessment and improvement of leadership for safety and of safety culture</b>	16
REFERENCES	17
CONTRIBUTORS TO DRAFTING AND REVIEW	20

# 1. INTRODUCTION

## BACKGROUND

1.1. This Safety Requirements publication establishes requirements for establishing, assessing, sustaining and continuously improving effective leadership and management for safety in organizations concerned with facilities and activities that give rise to radiation risks<sup>1</sup>. This includes the regulatory body and other competent authorities, and the organization responsible for the facility or for the activity.

1.2. This Safety Requirements publication supersedes IAEA Safety Standards Series No. GS-R-3 on the Management System for Facilities and Activities<sup>2</sup>. This Safety Requirements publication develops the concepts of the publication of 2006 and takes into account lessons drawn from experience in events that have occurred. It emphasizes that leadership for safety, management for safety, an integrated management system and a systemic approach (i.e. an approach relating to the system as a whole) are essential to the specification and application of adequate safety measures and the fostering of a strong safety culture [1].

1.3. Management systems that are designed to fulfil the requirements of this Safety Requirements publication will integrate safety, health, environmental, security, quality, societal and economic elements<sup>3</sup>. The management system supports the achievement of the fundamental safety objective of protecting people and the environment from harmful effects of ionizing radiation [1], and takes into account the interfaces between safety and security. Experience from Member States in developing, applying, sustaining and improving management systems was taken into account in the development of this safety standard.

1.4. Effective application of the requirements of this Safety Requirements publication will satisfy the fundamental safety principles [1], and in particular Principle 3, which states that “Effective leadership and management for safety must be established and sustained in organizations concerned with, and facilities and activities that give rise to, radiation risks.”

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<sup>1</sup> ‘Radiation’ as used here means ionizing radiation.

<sup>2</sup> INTERNATIONAL ATOMIC ENERGY AGENCY, The Management System for Facilities and Activities, IAEA Safety Standards Series No. GS-R-3, IAEA, Vienna (2006).

<sup>3</sup> Economic objectives are included in the list of elements that have to be integrated, as it is recognized that economic decisions and actions may introduce, or may mitigate, potential risks.

1.5. This Safety Requirements publication establishes requirements for ensuring safety on the basis of the interrelated concepts of:

- (a) Leadership for safety: by establishing and integrating the organization’s vision, goals, strategies, plans and objectives; by advocating individual commitment to the protection of people and the environment from harmful effects of ionizing radiation; and by advocating the fundamental safety principles [1], establishing behavioural expectations and fostering a strong safety culture [2].
- (b) Management for safety: this includes establishing and applying an effective management system. This management system has to integrate all elements of management so that requirements for safety are established and applied coherently with other requirements, including those for human performance, quality and security; and so that safety is not compromised by needs to meet other requirements or demands. Safety measures and security measures must be designed and applied in an integrated manner [1]. The management system also has to ensure the fostering of a strong safety culture, the regular assessment of safety performance and the application of lessons from experience. The management system also supports the development of proactive and responsive management.

1.6. Principle 1 of Fundamental Safety Principles [1] states that “The prime responsibility for safety must rest with the person or organization responsible for facilities and activities that give rise to radiation risks”. Leadership and management for safety are therefore of fundamental importance for such organizations.

1.7. The requirements established in this Safety Requirements publication are intended for use in the following ways:

- (a) By the registrant or licensee, for establishing and sustaining leadership and management on the part of organizations and managers responsible for facilities and activities<sup>4</sup> that give rise to radiation risks<sup>5</sup> [1–3];

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<sup>4</sup> ‘Facilities’ includes: nuclear facilities; irradiation installations; some mining and raw material processing facilities such as uranium mines; radioactive waste management facilities; and any other places where radioactive material is produced, processed, used, handled, stored or disposed of — or where radiation generators are installed — on such a scale that consideration of protection and safety is required. ‘Activities’ includes: the production, use, import and export of radiation sources for industrial, research and medical purposes; the transport of radioactive material; the decommissioning of facilities; radioactive waste management

- (b) By the registrant or licensee, to specify to a vendor or supplier of products and equipment, or a contractor for services, and to any other relevant organization, any requirements that must be met by the vendor's or supplier's management system;
- (c) By the regulatory body, as part of the basis for the regulation of facilities and activities;
- (d) By the regulatory body and other relevant governmental organizations, as a basis for meeting their responsibilities for arrangements<sup>6</sup> in relation to leadership and management, in conjunction with the requirements established in Ref. [4].

1.8. The requirements established in this Safety Requirements publication apply to all types of facilities and activities, as specified in para. 1.11. However, the way in which the requirements are to be met will vary depending on the safety significance and complexity of the facility or activity. Recommendations and guidance on meeting the requirements are provided in Safety Guides. Other international standards or national standards<sup>7</sup> may be used in addition to the requirements of this Safety Requirements publication.

## OBJECTIVE

1.9. The objective of this Safety Requirements publication is to establish requirements that support Principle 3 of Fundamental Safety Principles [1], in relation to establishing, sustaining and continuously improving leadership and management for safety, and an effective management system. This is essential in order to foster and sustain a strong safety culture in the organization. Another objective is to establish requirements that apply

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activities such as the discharge of effluents; and some aspects of the remediation of sites affected by residues from past activities.

<sup>5</sup> The term 'radiation risks' is defined as:

- Detrimental health effects of exposure to radiation (including the likelihood of such effects occurring).
- Any other safety related risks (including those to the environment) that might arise as a direct consequence of:
  - Exposure to radiation;
  - The presence of radioactive material (including radioactive waste) or its release to the environment;
  - A loss of control over a nuclear reactor core, nuclear chain reaction, radioactive source or any other source of radiation.

<sup>6</sup> 'Arrangements' in this context means an integrated set of infrastructural elements necessary to provide the capability for performing a specified function or task. Such elements may include authorities and responsibilities, organization, coordination, personnel, plans, procedures, facilities, equipment, training and contracts.

<sup>7</sup> International standards are, for example, those of the International Organization for Standardization or the European Foundation for Quality Management; national standards are, for example, Nuclear Quality Assurance standards of the United States of America, or British standards on Occupational Health and Safety Management.

Principle<sup>o</sup>8, which states that “All practical efforts must be made to prevent and mitigate nuclear or radiation accidents”.

## SCOPE

1.10. ‘Safety’ means the protection of people and the environment against radiation risks and the safety of facilities and activities that give rise to the radiation risks.

1.11. The requirements in this Safety Requirements publication apply to all types of facilities and activities that give rise to radiation risks, as follows:

- (a) Nuclear installations (including nuclear power plants; research reactors (including subcritical and critical assemblies) and any adjoining radioisotope production facilities; facilities for the storage of spent nuclear fuel; facilities for the enrichment of uranium; nuclear fuel fabrication facilities; conversion facilities; facilities for the reprocessing of spent nuclear fuel; facilities for the predisposal management of radioactive waste arising from nuclear fuel cycle facilities; and nuclear fuel cycle related research and development facilities) [5, 6];
- (b) Facilities for the mining or processing of uranium ores or thorium ores;
- (c) Irradiation installations;
- (d) Facilities and activities for the management (including disposal) of radioactive waste, such as the discharge of effluents; and the remediation of sites affected by residual radioactive material from past activities [7];
- (e) Any other places where radioactive material is produced, processed, used, handled, stored or disposed of on such a scale that consideration of protection and safety is required, or where a radiation generator is installed;
- (f) Activities involving the production, use, import and export of sources of ionizing radiation for medical, industrial, agricultural, educational and research purposes;
- (g) The transport of radioactive material [8];
- (h) The decommissioning (or closure) of facilities [9];
- (i) Activities involving the design and manufacture of equipment and other works for and services to facilities or activities that give rise to radiation risks [10];

(j) Industrial activities involving naturally occurring radioactive material that are, or that may be, subject to the requirements for protection and safety.

1.12. The requirements in this Safety Requirements publication also apply in relation to the functions and activities of the regulatory body, as far as is appropriate. Regulatory bodies and other government organizations may need to adapt the requirements in accordance with their own organizations' accountabilities [4].

1.13. This Safety Requirements publication is applicable to organizations (i.e. registrants and licensees) throughout the lifetime of facilities and the duration of activities, for all operational states and for accident conditions, and in a nuclear or radiological emergency. The lifetime of a facility includes its siting and site evaluation, design, construction, commissioning, operation and decommissioning (or closure and the post-closure period, including any subsequent period of institutional control), until its release from regulatory control.

1.14. This Safety Requirements publication does not specify all those specific health, environment, security, quality and economic requirements to be addressed that have been established elsewhere (in other IAEA safety standards and in other international codes and standards).

## STRUCTURE

1.15. This Safety Requirements publication comprises six sections. Section 2 establishes requirements for the responsibility for safety and for protecting people and the environment against radiation risks as an overriding priority. Section 3 establishes requirements for leadership for safety. Section 4 establishes requirements for management for safety. Section 5 establishes requirements on the organization to foster and support a culture for safety. Section 6 establishes requirements for measurement, assessment and improvement.

## 2. RESPONSIBILITY FOR SAFETY

### **Requirement 1: Achieving the fundamental safety objective**

**The registrant or licensee — starting with the senior management — shall ensure that the fundamental safety objective of protecting people and the environment from harmful effects of ionizing radiation is achieved.**

2.1. The registrant or licensee shall ensure that provisions are made to achieve the fundamental safety objective.

2.2. The senior management of organizations, in accordance with their accountabilities:

- (a) Shall ensure the safe siting, design, construction, commissioning, operation and decommissioning (or closure) of facilities [2, 11–14];
- (b) Shall ensure that equipment and activities meet quality standards and safety standards.
- (c) Shall ensure the safe management and control of all radioactive material and radiation sources that are produced, processed, used, handled, transported, stored or disposed of [5, 15];
- (d) Shall ensure that managers at all levels in the organization develop and maintain an understanding of radiation risks and potential consequences, and of how to manage radiation risks relevant to their responsibilities<sup>8</sup> [16];
- (e) Shall ensure the provision for adequate resources and funding, including the long term management and disposal of radioactive waste, as well as for decommissioning (or closure) of facilities, with due consideration given to the protection of future generations [9, 15];
- (f) Shall ensure that adequate arrangements are made where appropriate for preparedness and response for a nuclear or radiological emergency [17–19].

### **3. LEADERSHIP FOR SAFETY**

#### **Requirement 2: Demonstration of leadership for safety by managers**

#### **Managers shall demonstrate leadership for safety and commitment to safety.**

3.1. The senior management of the organization shall demonstrate leadership<sup>9</sup> for safety by:

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<sup>8</sup> Some personnel are accredited or authorized by means of a regulatory process that may be separate or partly separate from the organization's management. However, the maintenance of skills and knowledge, and the continued eligibility for accreditation or authorization, will be the responsibility of the senior management throughout the period of time for which a person is employed by the organization.

<sup>9</sup> 'Management' is a formal, authorized function for ensuring that an organization operates efficiently and that work is completed in accordance with requirements, plans and resources. 'Leadership' is the use of an individual's capabilities and competences to give direction to and to influence the commitment of individuals



- (a) Establishing, advocating and adhering to an organizational approach to safety that stipulates that, as an overriding priority, issues relating to protection and safety receive the attention warranted by their significance;
- (b) Acknowledging that safety encompasses interactions between people, technology and the organization [2];
- (c) Establishing behavioural expectations and fostering a strong safety culture;
- (d) Establishing the acceptance of personal accountability in relation to safety on the part of all individuals in the organization and establishing that decisions taken at all levels take account of the priorities and accountabilities for safety.

3.2. Managers at all levels in the organization, taking into account their duties, shall ensure that their leadership includes:

- (a) Setting goals for safety that are consistent with the organization's policy for safety, actively seeking information on safety performance within their area of responsibility and demonstrating commitment to improving safety performance;
- (b) Development of individual and institutional values and expectations for safety throughout the organization by means of their decisions, statements and actions;
- (c) Ensuring that their actions serve to encourage the reporting of safety related problems, to develop questioning and learning attitudes, and to correct acts or conditions that are adverse to safety.

3.3. Managers at all levels in the organization:

- (a) Shall encourage and support all individuals in achieving safety goals and performing their tasks safely;
- (b) Shall engage all individuals in enhancing safety performance;
- (c) Shall communicate clearly the basis for decisions relevant to safety.

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and groups to achieving the fundamental safety objective and to applying the fundamental safety principles, by means of shared goals, values and behaviour. Managers at all levels need to be leaders for safety.

## 4. MANAGEMENT FOR SAFETY

### RESPONSIBILITY FOR INTEGRATION OF SAFETY INTO THE MANAGEMENT SYSTEM

#### **Requirement 3: Responsibility of senior management for the management system**

**Senior management shall be responsible for establishing, applying, sustaining and continuously improving a management system to ensure safety.**

4.1. Senior management shall retain accountability for the management system even where individuals are assigned responsibility for coordinating the development, application and maintenance of the management system [1, 2].

4.2. Senior management shall be responsible for establishing safety policy.

#### **Requirement 4: Goals, strategies, plans and objectives**

**Senior management shall establish goals, strategies, plans and objectives for the organization that are consistent with the organization's safety policy.**

4.3. Goals, strategies, plans and objectives for the organization shall be developed in such a manner that safety is not compromised by other priorities.

4.4. Senior management shall ensure that measurable safety goals that are in line with these strategies, plans and objectives are established at various levels in the organization.

4.5. Senior management shall ensure that goals, strategies and plans are periodically reviewed against the safety objectives, and that actions are taken where necessary to address any deviations.

#### **Requirement 5: Interaction with interested parties**

**Senior management shall ensure that appropriate interaction with interested parties takes place.**

4.6. Senior management shall identify interested parties for their organization and shall define an appropriate strategy for interaction with them.

4.7. Senior management shall ensure that the processes and plans resulting from the strategy for interaction with interested parties include:

- (a) Appropriate means of routinely consulting and informing interested parties with regard to radiation risks associated with the operation of facilities and the conduct of activities;

- (b) Appropriate, timely and effective consultation of, and communication with, interested parties in changed or unanticipated circumstances, and the dissemination to them of necessary information relevant to safety;
- (c) Appropriate means of considering in decision making processes the concerns and expectations of interested parties in relation to safety.

## THE MANAGEMENT SYSTEM

### **Requirement 6: Integration of the management system**

**The management system shall integrate its elements, including safety, health, environmental, security, quality, human performance, societal and economic elements, so that safety is not compromised.**

4.8. The management system shall be developed, applied and continuously improved. It shall be aligned with the safety goals of the organization.

4.9. The management system shall be applied to achieve goals safely, to enhance safety and to foster a strong safety culture by:

- (a) Bringing together in a coherent manner all the necessary elements for safely managing the organization and its activities;
- (b) Describing the arrangements made for management of the organization and its activities;
- (c) Describing the planned and systematic actions necessary to provide confidence that all requirements are met;
- (d) Ensuring that safety is taken into account in decision making and is not compromised by any decisions taken.

4.10. Arrangements shall be made in the management system for the resolution of conflicts arising in decision making processes. Potential impacts of security measures on safety and potential impacts of safety measures on security shall be identified and shall be resolved without compromising safety or security [20–23].

4.11. The organizational structures, processes, responsibilities, accountabilities, levels of authority and interfaces within the organization and with external organizations shall be clearly specified in the management system.

4.12. Regulatory requirements shall be reflected in the management system.

4.13. Provision shall be made in the management system to identify any changes (including organizational changes and the cumulative effects of minor changes) that could have significant implications for safety and to ensure that they are appropriately analysed.

4.14. Arrangements shall be established in the management system for independent review before decisions significant for safety are made. The requirements on the independent nature of the review and on the necessary competences of the reviewers shall be specified in the management system.

#### **Requirement 7: Application of the graded approach to the management system**

**The management system shall be developed and applied using a graded approach.**

4.15. The criteria used to grade the development and application of the management system shall be documented in the management system. The following shall be taken into account:

- (a) The safety significance and complexity of operation of the organization or facility or conduct of the activity;
- (b) The hazards and the magnitude of the potential impacts (risks) associated with the safety, health, environmental, security, quality and economic elements of each facility or activity [16, 24–26];
- (c) The possible consequences for safety if a failure or an unanticipated event occurs or if an activity is inadequately planned or improperly carried out.

#### **Requirement 8: Documentation of the management system**

**The management system shall be documented. The documentation of the management system shall be controlled, usable, readable, clearly identified and readily available at the point of use.**

4.16. The documentation of the management system shall include as a minimum: policy statements of the organization on values and behavioural expectations; the fundamental safety objective; a description of the organization and its structure; a description of the responsibilities and accountabilities; the levels of authority, including all interactions of those managing, performing and assessing work and including all processes; a description of how the management system complies with regulatory requirements that apply to the organization; and a description of the interactions with external organizations and with interested parties.

4.17. Documents shall be controlled. All individuals responsible for preparing, reviewing, revising and approving documents shall be competent to perform the tasks and shall be given access to appropriate information on which to base their input or decisions.

4.18. Revisions to documents shall be controlled, reviewed and recorded. Revised documents shall be subject to the same level of approval as the initial documents.

4.19. Records shall be specified in the management system and shall be controlled. All records shall be readable, complete, identifiable and easily retrievable.

4.20. Retention times of records and associated test materials and specimens shall be established to be consistent with the statutory requirements and with the obligations for knowledge management of the organization. The media used for records shall be such as to ensure that the records are readable for the duration of the retention times specified for each record.

## MANAGEMENT OF RESOURCES

### **Requirement 9: Provision of resources**

**Senior management shall determine the competences and resources necessary to carry out the activities of the organization safely and shall provide them.**

4.21. Senior management shall make arrangements to ensure that the organization has in-house, or maintains access to, the full range of competences and the resources necessary to conduct its activities and to discharge its responsibilities for ensuring safety at each stage in the lifetime of the facility or activity, and during an emergency response [13, 14, 17].<sup>10</sup>

4.22. Senior management shall determine which competences and resources the organization has to retain or has to develop internally, and which competences and resources may be obtained externally, to ensure safety.

4.23. Senior management shall ensure that the competence requirements for individuals at all levels are specified and shall ensure that training is conducted, or other actions are taken, to achieve and to sustain the required levels of competence. An evaluation shall be conducted of the effectiveness of the training and of the actions taken.

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<sup>10</sup> 'Resources' includes individuals (the number of individuals and their competences), infrastructure, the working environment, knowledge and information, and suppliers, as well as material and financial resources.

4.24. Competences to be sustained in-house by the organization shall include: competences for leadership at all management levels; competences for fostering and sustaining a strong safety culture; and expertise to understand human, technical and organizational aspects relating to the facility or the activity in order to ensure safety.

4.25. Senior management:

- (a) Shall ensure that individuals at all levels, including managers and workers, are competent to perform their assigned tasks and to work safely and effectively;
- (b) Shall ensure that individuals at all levels, including managers and workers, understand the standards that they are expected to apply in the completion of their tasks.

4.26. All individuals in the organization shall be trained in relevant requirements of the management system. Such training shall be conducted to ensure that individuals are knowledgeable of the relevance and the importance of their activities and of how their activities contribute to ensuring safety in the achievement of the organization's goals.

4.27. The knowledge and the information of the organization shall be managed as a resource.

## MANAGEMENT OF PROCESSES AND ACTIVITIES

### **Requirement 10: Management of processes and activities**

**Processes and activities shall be developed and shall be effectively managed to achieve the organization's goals without compromising safety.**

4.28. Each process shall be developed and shall be managed to ensure that requirements are met without compromising safety. Processes shall be documented and the necessary supporting documentation shall be maintained. It shall be ensured that process documentation is consistent with any existing documents of the organization. Records to demonstrate that the results of the process have been achieved shall be specified in the process documentation.

4.29. The sequencing of a process and the interactions between processes shall be specified so that safety is not compromised. Effective interaction between interfacing processes shall be ensured. Particular consideration shall be given to interactions between processes within the organization, and to interactions between processes of the organization and processes conducted by external service providers.

4.30. New processes or modifications to existing processes shall be designed, verified, approved and applied so that safety is not compromised. Processes, including any subsequent

modifications to them, shall be aligned with the goals, strategies, plans and objectives of the organization.

4.31. Any activities for inspection, testing, and verification and validation, their acceptance criteria and the responsibilities for carrying out such activities shall be specified. It shall be specified when and at what stages independent inspection, testing, and verification and validation are required to be conducted.

4.32. Each process or activity that could have implications for safety shall be carried out under controlled conditions, by means of following readily understood, approved and current procedures, instructions and drawings. These means shall be validated before their first use and shall be periodically reviewed to ensure their adequacy and effectiveness. Individuals carrying out such activities shall be involved in the validation and the periodic review of such procedures, instructions and drawings.

#### **Requirement 11: Management of the supply chain**

**The organization shall put in place arrangements with vendors, contractors and suppliers to specify, monitor and control the supply of items, products and services that may influence safety.**

4.33. The organization shall retain responsibility for safety when contracting out any processes and when receiving any item, product or service in the supply chain<sup>11</sup>.

4.34. The organization shall have a clear understanding and knowledge of the product or service being supplied<sup>12</sup>. The organization shall itself retain the competence to specify the scope and standard of a required product or service, and subsequently to assess whether the product or service supplied meets the applicable safety requirements.

4.35. The management system shall include arrangements for qualification, selection, evaluation, procurement and oversight of the supply chain.

4.36. The organization shall make arrangements for ensuring that suppliers of items, products and services important to safety adhere to safety requirements and meet the organization's expectations of safe conduct in their delivery.

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<sup>11</sup> The supply chain, described as 'suppliers', typically includes: designers, vendors, manufacturers and constructors, employers, contractors, subcontractors, and consigners and carriers who supply safety related items. The supply chain can also include other parts of the organization and parent organizations.

<sup>12</sup> The capability of the organization to have a clear understanding and knowledge of the product or service to be supplied is sometimes termed an 'informed customer' capability.

## 5. CULTURE FOR SAFETY

### **Requirement 12: Fostering a culture for safety**

**Individuals in the organization, from senior managers downwards, shall foster a strong safety culture. The management system and leadership for safety shall be such as to foster and sustain a strong safety culture.**

5.1. All individuals in the organization shall contribute to fostering and sustaining a strong safety culture [1, 2].

5.2. Senior managers and all other managers shall advocate and support the following:

- (a) A common understanding of safety and of safety culture, including: awareness of radiation risks and hazards relating to work and to the working environment; an understanding of the significance of radiation risks and hazards for safety; and a collective commitment to safety by teams and individuals;
- (b) Acceptance by individuals of personal accountability for their attitudes and conduct with regard to safety;
- (c) An organizational culture that supports and encourages trust, collaboration, consultation and communication;
- (d) The reporting of problems relating to human and organizational factors and reporting of any deficiencies in structures, systems and components to avoid degradation of safety, including the timely acknowledgement of, and reporting back of, actions taken;
- (e) Measures to encourage a questioning and learning attitude at all levels in the organization and to discourage complacency with regard to safety;
- (f) The means by which the organization seeks to enhance safety and to foster safety culture, and using a systemic approach (i.e. an approach relating to the system as a whole);
- (g) Safety oriented decision making in all activities;
- (h) The exchange of ideas between, and the combination of, safety culture and security culture.



## 6. MEASUREMENT, ASSESSMENT AND IMPROVEMENT

### **Requirement 13: Measurement, assessment and improvement of the management system**

**The effectiveness of the management system shall be measured, assessed and improved to enhance safety performance and to minimize the number of safety related events.**

6.1. The effectiveness of the management system shall be monitored and measured to confirm the ability of the organization to achieve the results intended and to identify opportunities for improvement of the management system.

6.2. All processes shall be regularly evaluated for their effectiveness and for their ability to ensure safety.

6.3. The causes of non-conformances of processes, of events and of safety related problems that arise shall be determined, the potential consequences shall be evaluated and any consequences shall be managed and shall be mitigated. The corrective actions necessary for eliminating the causes of non-conformances and the preventive actions necessary to avoid the recurrence of safety related events, or the occurrence of similar events, shall be determined, and corrective actions shall be taken in a timely manner. The status and effectiveness of all corrective actions and preventive actions taken shall be monitored and shall be reported to the management at an appropriate level in the organization.

6.4. Independent assessments and self-assessments of the management system shall be regularly conducted to evaluate its effectiveness and to identify opportunities for its improvement. Lessons and any resulting significant changes shall be analysed for their implications for safety.

6.5. Responsibility shall be assigned for conducting independent assessments of the management system. The organizations, entities (in-house or external) and individuals assigned such responsibilities shall be given sufficient authority to discharge their responsibilities and shall have direct access to senior management. In addition, individuals conducting independent assessments of the management system shall not be assigned responsibility to assess areas under the responsibility of their own line management.

6.6. Senior management shall conduct a review of the management system at planned intervals to confirm its suitability and effectiveness, and its ability to enable the objectives of

the organization to be accomplished, with account taken of new requirements and changes in the organization.

6.7. The management system shall include evaluation and timely use of the following:

- (a) Lessons from experience gained and from events that have occurred, both within the organization and outside the organization, and lessons from identifying the causes of events;
- (b) Technical advances and results of research and development;
- (c) Lessons from identifying good practices.

6.8. Organizations shall make arrangements to learn from successes and from strengths for their organizational development and continuous improvement.

**Requirement 14: Measurement, assessment and improvement of leadership for safety and of safety culture**

**Senior management shall regularly commission assessments of leadership for safety and of safety culture in its own organization.**

6.9. Senior management shall ensure that self-assessment of leadership for safety and of safety culture includes assessment at all organizational levels and for all functions in the organization. Senior management shall ensure that such self-assessment makes use of recognized experts in the assessment of leadership and of safety culture.

6.10. Senior management shall ensure that an independent assessment of leadership for safety and of safety culture is conducted for enhancement of the culture for safety.

6.11. The results of self-assessments and independent assessments of leadership for safety and of safety culture [1] shall be communicated at all levels in the organization. The results of such assessments shall be acted upon to foster and sustain a strong safety culture, to improve leadership for safety and to foster a learning attitude within the organization.

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