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Leadership and Management for Safety

DRAFT GENERAL SAFETY REQUIREMENTS

GSR Part 2

DS456

IAEA
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1. INTRODUCTION

BACKGROUND

1.1. This Safety Requirements publication establishes the requirements for establishing and sustaining effective leadership and management for safety in all organizations concerned with, and all authorized facilities and activities that give rise to radiation risks. 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]. Safety includes the safety of nuclear installations, radiation safety, the safety of disposal facilities for radioactive waste and safety in the transport of radioactive material.

1.2. This Safety Requirements publication supersedes IAEA Safety Standards Series GS-R-3 on The Management System for Facilities and Activities[1]. It builds on the concepts of GS-R-3 and emphasizes that leadership and management for safety and an integrated management system are essential to the adequate definition and implementation of safety measures and the development of a strong safety culture to continuously improve safety. The experience of Member States in developing, implementing and improving management systems was taken into account in the development of this publication.

1.3. The requirements of this publication are governed by the Fundamental Safety Principles [1], in particular Principle 3, which states that "Effective leadership and management for safety must be established and sustained in organizations concerned with, and authorized facilities and activities that give rise to, radiation risks." The publication contains numbered 'overarching' requirements and associated requirements, both expressed as 'shall' statements. In addition, the publication includes explanatory text in support of the requirements.

[1] INTERNATIONAL ATOMIC ENERGY AGENCY, The Management System for Facilities and Activities, IAEA Safety Standards Series No. GS-R-3, IAEA, Vienna (2006).

1.4. This publication defines the framework to achieve and continuously improve safety relying on three elements: leadership for safety to set a vision through safety goals and expected values and behaviours as well as to ensure a shared understanding within the organization, an integrated management system that makes the fundamental safety objective, namely to protect people and the environment from harmful effectives of ionizing radiation [1], the overriding priority and a strong safety culture ensuring a collective and individual commitment to safety. These three elements are deeply interrelated and support each other in a coherent manner.

1.5. The difference between management and leadership can be stated simply: '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; while 'leadership' is the use of capabilities to give direction, to influence and communicate with the aim of achieving the commitment of all individuals to appropriate goals, shared values and behaviours. Managers at all levels need also to be leaders.

1.6. Principle 1 of the 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". Therefore leadership for safety and management for safety are fundamental for the licensee.

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

- By the licensee[2] for ensuring adequate leadership and management of individuals and organizations responsible for facilities and activities that give rise to radiation risks;
- By the licensee to specify to a supplier and any other relevant organization, via contractual documentation or other means, any specific requirements that must be included in the supplier's management system;
- By the regulatory body as a basis for the regulation of facilities and activities;

[2] For the purposes of this publication, the term 'licensee' is used; other forms of authorization such as registration might apply.

- By the regulatory body and other relevant governmental organizations as a basis for meeting their responsibilities for arrangements[3] for leadership and management in conjunction with the requirements established in Ref. [2] ;

This publication is not intended to be directly and entirely applicable to vendors, contractors or suppliers of products, equipment and services, although some of the requirements may be applicable.

1.8. This publication does not provide guidance on how to meet the requirements. The requirements established in this publication apply to all facilities and activities, but the way they are to be met may vary depending on the complexity and the type of facility or activity. Guidance on meeting the requirements is provided in related Safety Guides. Other international standards or national standards[4] can be used to supplement the requirements of this publication.

OBJECTIVE

1.9. The objective of this publication is to establish requirements in respect of Principle 1 and Principle 3 of the Fundamental Safety Principles [1], for developing, maintaining and continuously improving leadership for safety, management for safety based on an integrated management system, and safety culture in the organization.

SCOPE

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

[3] An arrangement is 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.

[4] International standards are, for example, those of the International Standards Organization (ISO 9001, ISO 14001, OHSAS 18001) or the European Foundation for Quality Management; examples of national standard are the Nuclear Quality Assurance standard of the United States of America, ASME NQA-1, or the British standard OHSAS 18001 on Occupational Health and Safety Management.

- Nuclear installations (including nuclear power plants; research reactors; 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; nuclear fuel cycle related research and development facilities);
- Facilities for the mining or processing of uranium ores or thorium ores;
- Radioactive waste disposal facilities;
- Activities involving the production, use, import and export of sources of ionizing radiation (for medical, industrial, research, inspection and other purposes);
- The transport of radioactive material;
- The decommissioning of facilities;
- Radioactive waste management activities;
- Activities relating to radiation protection.

It also applies to the functions of the regulatory body.

1.11. This Safety Requirements publication is applicable, together with other IAEA Safety Requirements publications, throughout the lifetime of facilities and for the entire duration of activities, in all operational states and in accident conditions, including for any subsequent period of institutional control. The lifetime of a facility includes its siting and site evaluation, design, construction, commissioning, operation and decommissioning (or closure) and the post-closure period, if any, or its release from regulatory control.

1.12. This publication does not attempt to establish all those specific safety, health, environmental, security, quality, social and economic requirements and recommendations to be met that have already been established in other IAEA safety standards [2- 8], in the IAEA Nuclear Security Series [9, 10] and in international codes and standards [11-17]. Rather, it establishes the requirements for managing the fulfilment of these other requirements in an integrated manner, with a focus on leadership for safety and management for safety. The terms used in this publication are defined in the IAEA Safety Glossary [18].

STRUCTURE

1.13. This Safety Requirements publication consists of five sections. Section 2 establishes requirements on the responsibilities of the organization. Section 3 establishes requirements for effective and sustainable leadership for safety. Section 4 establishes requirements for management for safety and for improving the management system. Section 5 establishes requirements relating to safety culture.

~~2.~~RESPONSIBILITY OF SENIOR MANAGEMENT FOR LEADERSHIP AND , MANAGEMENT FOR SAFETY ~~AND SAFETY CULTURE~~

2. REQUIREMENT 1: RESPONSIBILITIES OF THE SENIOR MANAGEMENT[5] OF AN ORGANIZATION

The senior management of an organization shall ensure that managers at all levels, including themselves, ~~—~~demonstrate effective leadership, implement an integrated management system giving an overriding priority to safety and fostering safety culture

2.1. The highest priority shall be given to the fundamental safety objective to protect people and the environment from harmful effects of ionizing radiation [1]. As the prime responsibility for safety lies with the licensee, effective leadership, an integrated management system and a strong safety culture are prerequisites for the operating organization of a facility or activity

2.2. ~~The organization~~ The senior management shall demonstrate effective leadership for safety that continuously improves safety and safety culture.~~[repeat of Req 2?]~~

2.3. The senior management ~~The organization~~ shall foster safety culture in a systemic manner.~~[repeat of 3.8, 5.1, 5.2?]~~

[5] 'Senior management' means the person who, or the persons who, are accountable for meeting the terms established in the license, and/or who direct, control and assess an organization at the highest level. Many different terms are used, including, for example: board of directors, chief executive officer (CEO), director general, executive team, plant manager, top manager, chief regulator, site vice-president, managing director and laboratory director.

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Kommentar [GP1]: See footnote Senior management covers board of directors, chief executive officer (CEO), director general, executive team, plant manager, top manager, **chief regulator**, site vice-president, managing director and laboratory director.

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2.4. The senior management~~organization~~ shall specify the management structures and the responsibilities and accountabilities of senior management[6] for safety. The organizational structure shall be such that clear accountability for safety is enabled. ~~[repeat of 4.4?]~~

2.5. ~~The organization shall be responsible for establishing and implementing an effective integrated management system for the purpose of ensuring safety.~~ Among other responsibilities, the Senior management shall be responsible for:

~~a.~~ Establishing policies, procedures and arrangements for ensuring safety in all operational states and in accident conditions; ~~[repeat of Req.5?]~~

a.

b. Establishing and maintaining the competences and resources necessary to ensure safety; ~~[repeat of Req. 6?]~~

c. Ensuring the provision of adequate training and the information necessary to ensure safety; ~~[repeat of 4.19?]~~

d. Ensuring the appropriate siting and site evaluation, design, construction, commissioning, operation and decommissioning of the facility or the appropriate conduct of the activity, and the adequate quality of their associated equipment important to safety;

e. Ensuring the safe management and control of all radioactive material that is produced, processed, used, handled, stored, disposed of or transported;

f. Ensuring the safe management and control of all radioactive sources and radiation generators;

g. Ensuring that provision is made for the safe management and control of all radioactive waste generated, including the provision of adequate resources and

[6] ~~'Senior management' means the person who, or the persons who, are accountable for meeting the terms established in the license, and/or who direct, control and assess an organization at the highest level. Many different terms are used, including, for example:. board of directors, chief executive officer (CEO), director general, executive team, plant manager, top manager, chief regulator, site vice president, managing director and laboratory director.~~

funding, for the long term management and disposal of radioactive waste, with consideration given to the protection of present and future generations.

h. Ensuring effective communication within the organization and between the organization and interested parties. ~~[repeat of para 3.6?]~~

i. Ensuring that vendors, suppliers and contractors understand and comply with the safety requirements relating to the items, products or services they provide;

~~i. [repeat of Req. 11?]~~

j. Ensuring that vendors, suppliers and contractors understand expectations and foster a safety culture; ~~[repeat of 4.51?]~~

k. Ensuring that arrangements are put in place to prevent malicious acts and unauthorized access and threats to the facility or activity;

l. Ensuring the physical protection of the facility and preventing the misuse of radioactive material and sources;

m. Ensuring effective response in the event of an emergency and establishing arrangements for severe accident management.

2.6. Senior management shall put in place arrangements for the effective governance of safety, e.g. establishing a vision, strategies and policies, overseeing their implementation and managing performance. ~~[repeat of Req. 5?]~~ In particular, senior management shall determine which resources and capabilities to retain or develop in-house and which to partially or fully outsource.

~~2.7.~~ Senior management shall consider the expectations of interested parties[7] in its decision making processes. ~~[repeat of 4.46?]~~

2.7.

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[7] Interested parties (stakeholders): customers, owners, operators, employees, suppliers, partners, trade unions, the regulated industry or professionals; scientific bodies; governmental agencies or regulators (local, regional and national) whose responsibilities may cover nuclear energy; the media; the public (individuals, community groups and interest groups); and other States, especially neighbouring States that have entered into agreements providing for an exchange of information concerning possible trans boundary impacts, or States involved in the export or import of certain technologies or materials.

3. LEADERSHIP FOR SAFETY

Requirement 2: Leadership

Effective leadership for safety shall be demonstrated by senior management, by managers at all levels in the organization and by other leaders[8].

3.1. Senior management shall promote a systemic/holistic approach to safety that embraces all interactions between human, organization and technology.

~~3.1.~~3.2. Senior management shall develop shared values for safety, shall establish behavioural expectations so as to shape a strong safety culture, and shall encourage acceptance of personal responsibility for safety among all individuals.

~~3.2.~~3.3. Senior management shall establish and communicate a clear safety policy, vision, strategy, plans and objectives, whereby safety is paramount, overriding all other priorities.

~~3.3.~~3.4. Senior management shall ensure that responsibilities and accountabilities are in line with policies, strategies and objectives, to ensure that safety requirements and safety goals are met and to guide decision making at all levels.

~~3.4.~~3.5. Senior management shall develop and maintain leadership capabilities at all levels in the organization. This shall include capabilities for leadership in severe or unexpected situations.

~~3.5.~~3.6. Senior management shall encourage open communication and shall seek feedback on how effective leadership in the organization is in ensuring and improving safety, and shall take action as necessary.

~~3.6.~~3.7. Senior management shall ensure timely and effective communication with interested parties and the dissemination of relevant information to interested parties.

[8] The term 'leader' is used in this publication to refer to managers as leaders as well as other individuals demonstrating leadership (see para. 1.5).

~~3.7.~~3.8. Managers at all levels in the organization shall demonstrate commitment to the establishment, implementation, assessment and continuous improvement of the management system.

~~3.8.~~3.9. Managers at all levels in the organization shall foster and encourage the involvement of all individuals in the organization in the implementation and continuous improvement of the management system.

~~3.9.~~3.10. Leaders at all levels in the organization shall demonstrate shared values and expectations throughout the organization by their decisions, words and actions, including when problems arise.

~~3.10.~~3.11. Leaders at all levels in the organization shall consistently demonstrate and foster attitudes and behaviours that result in an enduring and strong safety culture.

3.12. Leaders at all levels in the organization shall actively seek information on safety performance within their area of responsibility, shall share this information within the organization in an open and transparent manner and shall demonstrate commitment to continuous improvement of safety. Leaders at all levels in the organization shall ensure that their actions serve to encourage an open reporting culture and a readiness to challenge acts or conditions adverse to safety.

3.13. Leaders at all levels in the organization shall ensure a shared understanding throughout the organization of potential risks and consequences, and of how to manage them.

~~3.11.~~3.14. Leaders shall promote a resilient organization that is more flexible and robust to be able to react to the unexpected by learning from successes and sharing strengths and weaknesses

~~3.12.~~3.15. Leaders at all levels in the organization shall support and encourage all individuals in achieving safety in their work and shall seek their active involvement in improving safety performance; this shall include the consideration of the input of individuals at all levels into safety related decisions.

4. MANAGEMENT FOR SAFETY

Requirement 3: Establishment, implementation and continuous improvement of an integrated management system

Senior management shall establish, implement and continuously improve an effective integrated management system that ensures safety.

4.1. The management system shall integrate all elements of management, including safety, health, environmental, security, quality, social and economic elements, so that safety is not compromised. An integrated management system is a single coherent system in which all elements of an organization are integrated to enable the organization's objectives to be achieved. Such elements include the organizational structure, resources and processes.

4.2. Provisions shall be made in the management system to identify potential impact of security on safety and vice versa, to prevent jeopardizing one or the other and to keep the fundamental safety objective as an overriding priority;

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4.3. The management system shall be employed to achieve and enhance safety by:

- Bringing together in a coherent manner all the requirements[9] for managing the organization and its activities;
- Describing the arrangements made for the management for safety in order to achieve high levels of safety performance and describing the planned and systematic actions necessary to provide adequate confidence that all requirements are met;
- Ensuring that safety is taken into account in all decision making and is not compromised by any decisions taken.

4.4. The management and organizational structures, processes, responsibilities, accountabilities, levels of authority and interfaces within the organization and with external

[9] The management system may identify and integrate the following requirements with the requirements contained within this publication:

- The statutory and regulatory requirements of the State;
- Any requirements formally agreed with interested parties (also known as 'stakeholders');
- All other relevant IAEA safety requirements;
- Requirements from other relevant codes and standards adopted for use by the organization

organizations, including with a parent organization, shall be clearly defined in the management system.

4.5. Senior management shall establish, implement and keep the management system up-to-date in order to achieve the safety goals and objectives and to meet regulatory and other requirements. Senior management shall retain overall responsibility for the management system.

4.6. Senior management shall appoint an individual to have the specific responsibility for coordinating the development, implementation and maintenance of the management system. This individual shall have sufficient authority to discharge these responsibilities and shall have direct access to senior management. This shall not detract from the accountability of line management[10] for safety.

4.7. Any significant change to processes, projects, organization or cumulative effects of a series of organizational changes shall be analysed with regard to actual or potential impacts on safety. Managers concerned shall take appropriate measures to manage risks, including any impact on the management system.

4.8. Arrangements shall be established as part of the management system for independent review before decisions important to safety are made. The requirements for the nature of the independence and for the competence of the reviewers shall be specified in the management system.

4.9. Arrangements shall be established in the management system for the resolution of conflicts.

4.10. Opportunities for improvements in safety and in the management system shall be identified and actions to improve safety and the processes shall be selected, planned, resourced and recorded.

[10] Line management is the chain of command accountable for the performance of activities.

Requirement 4: Graded approach

The application of the management system requirements shall be graded for each activity and process relating to safety.

4.11. The principles for grading the application of the management system requirements shall be documented in the management system and shall take into account the following:

a. The safety significance and complexity of the process, activity, structure, system, component, item of equipment, product or service;

b. The hazards, the magnitude of the risk to safety and the potential radiological impact associated with the safety, health, environmental, security, quality, social, economic and other elements of each activity;

c. The possible consequences if a failure or unexpected event occurs or if an activity is inadequately conceived of or improperly carried out.

Requirement 5: Establishment of goals, strategies, plans, policies and objectives

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

4.12. Senior management shall establish the policies of the organization and shall document these in the management system. The policies shall be appropriate to the activities and facilities of the organization and shall support the safety policy.

4.13. Senior management shall establish arrangements for the development of goals, [is this safety goals? I guess not] strategies, plans and objectives, taking into account feedback from individuals within the organization. The goals, strategies, plans and objectives of the organization shall be developed in such a manner that safety is not compromised by other factors such as concerns regarding production and costs.

Kommentar [GP2]: You're right, it's not only safety goals...

4.14. The goals, strategies, plans and objectives shall be communicated to individuals at all levels in the organization and shall be implemented and ~~evaluated at~~evaluated at all levels in the organization. All individuals doing work under the organization's control shall be aware of and shall understand the policies and objectives relevant to their tasks, their contribution to the effectiveness of the management system and the safety implications of not conforming to its requirements.

4.15. Senior management shall ensure that, where relevant, measurable objectives for implementing the goals, strategies and plans are established at various levels in the organization.

4.16. Senior management shall ensure that the implementation of the plans is periodically reviewed against the objectives and goals, and that actions are taken to address deviations from the plans where necessary.

Requirement 6: Provision of resources[11]

Senior management shall determine and provide the resources necessary to carry out the activities of the organization, so that safety is continuously improved and is not compromised.

4.17. Senior management shall determine the necessary resources and capabilities to ensure safety and shall provide these in a timely manner to carry out the activities of the organization.

4.18. Senior management shall put in place arrangements to ensure that the organization has and maintains the full range of human resources and capabilities necessary to carry out all of its activities and responsibilities to ensure safety at each stage in the lifetime of the facility and for each activity. This includes human resources obtained from external expert support organizations.[unclear what 'external resources' would be; this is the term we used in GSG-4]

Kommentar [GP3]: What is GSG 4? I checked in GSR part 4 and GS-G-4.1 but this term is not used in them....?

4.19. 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 sustain the required levels of competence. An evaluation of the effectiveness of training or the actions taken shall be conducted.

4.20. Capabilities to be maintained in-house by the organization shall include effective leadership for safety at all levels and expertise to understand and maintain the design basis

[11] 'Resources' includes individuals (number of individuals and their competences), infrastructure, the working environment, information and knowledge, and suppliers, as well as material and financial resources.

and the safety case of the facility or activity. The organization shall maintain access to relevant expertise, including expertise in areas of social and behavioural science.

4.21. Senior management shall ensure that individuals at all levels, including management, are competent to perform their assigned work and that they understand the importance and the safety significance of their activities.

4.22. All individuals in the organization shall be trained in relevant requirements of the management system. Training shall ensure that individuals are aware of the relevance and importance of their activities and of how their activities contribute to safety in the achievement of the organization's objectives.

~~4.22.~~4.23. Training and information on human and organizational factors (social and behavioural sciences) shall be delivered at each functional team within an organization.

~~4.23.~~4.24. The information and knowledge of the organization shall be managed as a resource.

Requirement 7: Management of processes and activities[12]

Processes and activities shall be developed and effectively managed to ensure safety.

~~4.24.~~4.25. Each process shall be developed and managed in such a way that safety is not compromised and safety requirements are met. The processes, including mechanisms for obtaining feedback on the effectiveness of the management system, shall be implemented, assessed and continuously improved.

~~4.25.~~4.26. The sequencing of the processes and the interfaces between processes shall be defined so that safety is not compromised. Particular consideration shall be given to interfaces both within the organization and with processes conducted by external service providers.

[12] Processes do not necessitate the use of a specific standard, e.g. a standard issued by the International Organization for Standardization. Tasks or stand-alone activities can be organized without considering them as processes.

~~4.26.~~4.27. New processes or changes to existing processes shall be designed, verified, approved and implemented in such a way that safety is not compromised.

~~4.27.~~4.28. For each process, any activities for inspection, testing, verification and validation, their acceptance criteria and the responsibilities for carrying out such activities shall be specified including whether and at what stages independent inspection, testing, verification and validation are required to be conducted.

~~4.28.~~4.29. Each activity that may affect safety shall be carried out under controlled conditions, by using easily understood, approved current procedures, instructions, drawings or other appropriate means. These shall be validated before first use and shall be periodically reviewed to ensure their adequacy and effectiveness. Individuals carrying out the activities shall be involved in the validation of such procedures, instructions and drawings.

Requirement 8: Documentation of the management system

The management system shall be documented.

~~4.29.~~4.30. The documentation of the management system shall be developed to be understandable, unambiguous and user friendly to those who use it. Documents shall be controlled, readable, readily identifiable and easily available at the point of use.

~~4.30.~~4.31. The responsibilities for safety and the arrangements necessary to ensure safety shall be documented in the management system. The documentation of the management system shall, as a minimum, include the following:

a. The policy statements of the organization; the policy on safety shall state that the fundamental safety objective has overriding priority;
b. The values and the expectations of senior management;
c. A description of the structure of the organization;
d. A description of how the management system complies with the requirements on the organization;
e. A description of the responsibilities, accountabilities, levels of authority and interactions of those managing, performing and assessing work;
f. A description of ‘when, how and by whom’ decisions are to be made;
g. A description of the organization’s processes, as well as supporting information that explains how work is to be prepared, reviewed, carried out, recorded, assessed and

improved. The description shall be based on and shall reflect the policies of the organization;

h. A description of the interfaces with interested parties and external organizations including with its parent organization, if any, and with the regulatory body as applicable.

Requirement 9: Measurement, assessment, evaluation and improvement of the management system

Measurement, assessment and evaluation of the management system shall be performed in order to continuously improve safety performance.

~~4.31.~~4.32. The effectiveness of the management system shall be monitored and measured to confirm the ability of the management system to achieve the intended results and to identify opportunities for improvement.

~~4.32.~~4.33. All processes shall be periodically evaluated for their effectiveness. Suitable and sufficient assessments of the risk to safety arising from particular processes and activities shall be performed.

~~4.33.~~4.34. The causes of non-conformances, events and other safety issues that arise shall be determined and their potential consequences shall be evaluated. Corrective actions for eliminating the causes of non-conformances and actions to prevent similar issues shall be determined and implemented in a timely manner. The status and effectiveness of all corrective actions and preventive actions shall be monitored and shall be reported to management at an appropriate level in the organization.

~~4.34.~~4.35. Self-assessment shall be performed by individuals and by managers at all levels in the organization to prevent, identify and correct weaknesses that hinder the achievement of the organization's goals and objectives, as well as to confirm that work meets the requirements of the management system and enhances leadership, safety culture and the effectiveness of processes and activities. Self-assessment shall also be used to identify strengths and to learn from them.

4.35.4.36. Independent assessments[13] shall be conducted regularly on behalf of senior management in order to evaluate the effectiveness of the management system and all processes and activities specified in the management system and to identify opportunities for improvement. Such independent assessment shall critically evaluate the following:

a. The fulfilment of requirements, goals, strategies, plans and objectives;

b. The adequacy of work performance in achieving safety;

c. Leadership and safety culture;

d. The adequacy of resources provided for individuals to be able to meet requirements, goals, strategies, plans and objectives.

4.36.4.37. Senior management shall evaluate the results of the independent assessments and self-assessments, shall take any necessary actions, and shall record and communicate their decisions and the reasons for them.

4.37.4.38. Plans for the conduct of assessments shall be reviewed and adjusted to reflect new or emergent management concerns and performance problems as well as opportunities for improvement.

4.38.4.39. An organizational entity shall be established or an individual shall be appointed with the responsibility for conducting independent assessments. This entity or individual shall have sufficient authority to discharge its responsibilities and shall have direct access to senior management. Individuals conducting independent assessments shall not assess their own work.

4.39.4.40. A review of the management system shall be conducted by senior management at planned intervals to ensure the suitability and effectiveness of the management system and its ability to enable the objectives of the organization to be accomplished, with account taken of new requirements and changes in the organization.

4.40.4.41. The management system review shall cover all significant sources of information on safety performance, including the following:

[13] Independent assessments include audits.

a. Outputs from different forms of assessment;

b. Results delivered and objectives achieved by the organization and its processes and activities;

c. Non-conformances and the progress and effectiveness of corrective and preventive actions;

d. Feedback from operating experience, including lessons learned and good practices from other organizations;

e. Opportunities for improvement.

The review shall identify whether there is a need to make changes or improvements in policies, goals, strategies, plans and objectives, as well as in the processes or activities.

~~4.41.~~4.42. Performance indicators shall be developed and used in order to measure the effectiveness of the management system and to confirm the ability of the processes or activities to achieve the intended results. Trends in performance indicators shall be analysed and evaluated at regular intervals.

~~4.42.~~4.43. The management system shall include a systematic process for obtaining feedback from operating experience, as well as provision for the evaluation of lessons learned. This process shall be applied in a timely manner and shall make use of the following:

- Lessons learned from experience gained and events occurring, both within the organization and outside the organization, and from the causes of events;
- Technical advances and research;
- Methods for identifying good practice.

Requirement 10: Interactions with interested parties

Interactions with interested parties shall be integrated in the management system.

~~4.43.~~4.44. Senior management shall acknowledge and make arrangements for identifying, understanding and meeting legal and regulatory requirements imposed on the organization in respect of interaction with interested parties.

4.44.4.45. Senior management shall make arrangements to ensure that processes for meeting legal or regulatory requirements or voluntary initiatives for interactions with interested parties are specified in the management system, understood by all individuals in the organization and acted on as necessary.

4.45.4.46. Senior management shall establish appropriate means for informing and consulting the public and other interested parties with respect to possible radiation risks associated with the operation of a facility or the conduct of an activity.

4.46.4.47. Senior management shall make arrangements to take account of the comments and concerns of interested parties relevant to safety and take appropriate actions.

Requirement 11: Management of the supply chain[14]

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

4.47.4.48. The organization shall retain responsibility for safety when contracting any processes and/or when receiving any item, product or service.

4.48.4.49. The organization, as an 'intelligent customer', shall retain within itself the competence to specify the scope and standard of a required product or service and subsequently to assess whether the applied product or service meets safety requirements.

4.49.4.50. The management system shall include arrangements for:

a. The selection of suppliers of items, products and services on the basis of effectiveness of their own management system and performance;
b. The qualification of suppliers of items, products and services;
c. The specification of contractual requirements including safety related requirements;
d. The provision, where appropriate, of adequate advice, information and training to suppliers and their staff;
e. Appropriate arrangements for communication and supervision;

[14]The supply chain typically includes: designers, vendors, manufacturers and constructors, employers, contractors, subcontractors and consigners and carriers who are supplying safety related items. The supply chain can also include other parts of the organization and/or parent organizations.

f. The periodic assessment of the management system of suppliers and of their performance;

g. Verification and validation that items, products and services meet the requirements.

~~4.50.~~4.51. The organization shall communicate to each supplier the requirements and the principles for grading that must to be included in the supplier's management system.

~~4.51.~~4.52. The organization shall make arrangements to ensure that suppliers of items, products and services important to safety hold the shared values of the organization and demonstrate commitment to safety and a strong safety culture.

5. SAFETY CULTURE

Requirement 12: Continuous improvement of safety culture

All individuals in the organization, from the senior management down, shall promote safety and shall contribute to the continuous improvement of safety culture, supported by the management system and by effective leadership.

5.1 Desired and expected attitudes and behaviours, including those of suppliers, that promote a strong safety culture shall be defined in and fostered by the management system.

5.2 All individuals in the organization, from senior management down, shall contribute to promoting and fostering a strong safety culture, by reinforcing the following:

a. Both individual commitment to safety and a collective commitment to safety;

b. Acceptance of personal responsibility for safety;

c. An open culture that encourages trust, collaboration and free communication, and that values the reporting of human and organizational problems;

d. The reporting of any deficiencies in structures, systems and components to avoid degradation of safety;

e. The prompt acknowledgement and feedback for identified problems and suggestions for improvement;

f. A means by which the organization continuously seeks to develop and improve safety and the safety culture;

g. Responsibility and accountability of organizations and of individuals at all levels for safety;

h. Measures to encourage a questioning and learning attitude and to discourage complacency at all levels in the organization with regard to safety;

i. A common understanding of the key aspects of safety and safety culture within the organization;

j. An awareness of the risks and hazards relating to the work and to the work environment, and an understanding of potential consequences of such hazards;

k. Safety-driven conservative decision-making in all activities.

5.3 The management system shall include arrangements to ensure the involvement and visibility in field activities of all levels of management in the organization.

5.4 The management system shall include arrangements to support individuals and teams in carrying out their tasks successfully with regard to safety, with account taken of interactions between individuals, technology and organizations.

Requirement 13: Assessment of safety culture and leadership[15].

Senior management shall regularly commission independent assessments and provide for self-assessments of safety culture and leadership for safety.

5.5 The results of such assessments shall be communicated, in an open and transparent manner, to all levels in the organization and shall be acted upon to ensure improvements and to promote a learning attitude within the organization.

[15] Assessment of safety culture and leadership is a form of assessment requiring a specific approach and perspective on how human and organizational behaviours and attitudes impact upon safety. Assessment of safety culture and leadership is performed using specific methodologies (such as surveys, interviews, focus groups, field observations and reviews of document) and by individuals with specific competences, e.g. in behavioural and social sciences.

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