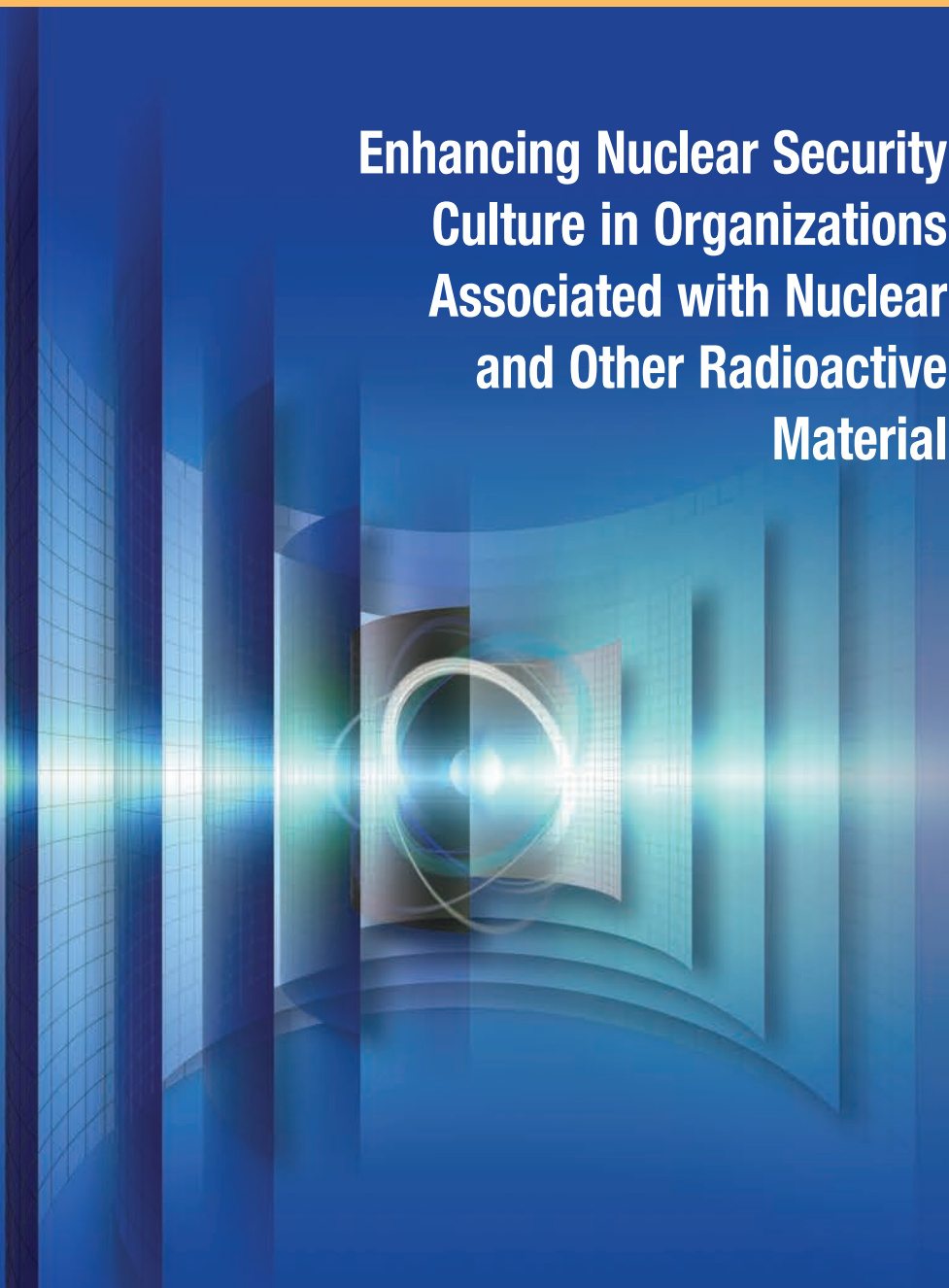
IAEA Nuclear Security Series No. 38-T

Technical Guidance

Enhancing Nuclear Security Culture in Organizations Associated with Nuclear and Other Radioactive Material



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IAEA NUCLEAR SECURITY SERIES

Nuclear security issues relating to the prevention and detection of, and response to, criminal or intentional unauthorized acts involving, or directed at, nuclear material, other radioactive material, associated facilities or associated activities are addressed in the **IAEA Nuclear Security Series**. These publications are consistent with, and complement, international nuclear security instruments, such as the Convention on the Physical Protection of Nuclear Material and its Amendment, the International Convention for the Suppression of Acts of Nuclear Terrorism, United Nations Security Council resolutions 1373 and 1540, and the Code of Conduct on the Safety and Security of Radioactive Sources.

CATEGORIES IN THE IAEA NUCLEAR SECURITY SERIES

Publications in the IAEA Nuclear Security Series are issued in the following categories:

- **Nuclear Security Fundamentals** specify the objective of a State's nuclear security regime and the essential elements of such a regime. They provide the basis for the Nuclear Security Recommendations.
- **Nuclear Security Recommendations** set out measures that States should take to achieve and maintain an effective national nuclear security regime consistent with the Nuclear Security Fundamentals.
- **Implementing Guides** provide guidance on the means by which States could implement the measures set out in the Nuclear Security Recommendations. As such, they focus on how to meet the recommendations relating to broad areas of nuclear security.
- **Technical Guidance** provides guidance on specific technical subjects to supplement the guidance set out in the Implementing Guides. They focus on details of how to implement the necessary measures.

DRAFTING AND REVIEW

The preparation and review of Nuclear Security Series publications involves the IAEA Secretariat, experts from Member States (who assist the Secretariat in drafting the publications) and the Nuclear Security Guidance Committee (NSGC), which reviews and approves draft publications. Where appropriate, open-ended technical meetings are also held during drafting to provide an opportunity for specialists from Member States and relevant international organizations to review and discuss the draft text. In addition, to ensure a high level of international review and consensus, the Secretariat submits the draft texts to all Member States for a period of 120 days for formal review.

For each publication, the Secretariat prepares the following, which the NSGC approves at successive stages in the preparation and review process:

- An outline and work plan describing the intended new or revised publication, its intended purpose, scope and content;
- A draft publication for submission to Member States for comment during the 120 day consultation period;
- A final draft publication taking account of Member States' comments.

The process for drafting and reviewing publications in the IAEA Nuclear Security Series takes account of confidentiality considerations and recognizes that nuclear security is inseparably linked with general and specific national security concerns.

An underlying consideration is that related IAEA safety standards and safeguards activities should be taken into account in the technical content of the publications. In particular, Nuclear Security Series publications addressing areas in which there are interfaces with safety — known as interface documents — are reviewed at each of the stages set out above by relevant Safety Standards Committees as well as by the NSGC.

ENHANCING NUCLEAR SECURITY CULTURE IN ORGANIZATIONS ASSOCIATED WITH NUCLEAR AND OTHER RADIOACTIVE MATERIAL

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The Agency's Statute was approved on 23 October 1956 by the Conference on the Statute of the IAEA held at United Nations Headquarters, New York; it entered into force on 29 July 1957. The Headquarters of the Agency are situated in Vienna. Its principal objective is "to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world".

IAEA NUCLEAR SECURITY SERIES No. 38-T

ENHANCING NUCLEAR SECURITY CULTURE IN ORGANIZATIONS ASSOCIATED WITH NUCLEAR AND OTHER RADIOACTIVE MATERIAL

TECHNICAL GUIDANCE

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FOREWORD

by Rafael Mariano Grossi
Director General

The IAEA Nuclear Security Series provides international consensus guidance on all aspects of nuclear security to support States as they work to fulfil their responsibility for nuclear security. The IAEA establishes and maintains this guidance as part of its central role in providing nuclear security related international support and coordination.

The IAEA Nuclear Security Series was launched in 2006 and is continuously updated by the IAEA in cooperation with experts from Member States. As Director General, I am committed to ensuring that the IAEA maintains and improves upon this integrated, comprehensive and consistent set of up to date, user friendly and fit for purpose security guidance publications of high quality. The proper application of this guidance in the use of nuclear science and technology should offer a high level of nuclear security and provide the confidence necessary to allow for the ongoing use of nuclear technology for the benefit of all.

Nuclear security is a national responsibility. The IAEA Nuclear Security Series complements international legal instruments on nuclear security and serves as a global reference to help parties meet their obligations. While the security guidance is not legally binding on Member States, it is widely applied. It has become an indispensable reference point and a common denominator for the vast majority of Member States that have adopted this guidance for use in national regulations to enhance nuclear security in nuclear power generation, research reactors and fuel cycle facilities as well as in nuclear applications in medicine, industry, agriculture and research.

The guidance provided in the IAEA Nuclear Security Series is based on the practical experience of its Member States and produced through international consensus. The involvement of the members of the Nuclear Security Guidance Committee and others is particularly important, and I am grateful to all those who contribute their knowledge and expertise to this endeavour.

The IAEA also uses the guidance in the IAEA Nuclear Security Series when it assists Member States through its review missions and advisory services. This helps Member States in the application of this guidance and enables valuable experience and insight to be shared. Feedback from these missions and services, and lessons identified from events and experience in the use and application of security guidance, are taken into account during their periodic revision.

I believe the guidance provided in the IAEA Nuclear Security Series and its application make an invaluable contribution to ensuring a high level of nuclear security in the use of nuclear technology. I encourage all Member States to promote and apply this guidance, and to work with the IAEA to uphold its quality now and in the future.

EDITORIAL NOTE

CONTENTS

1. INTRODUCTION

BACKGROUND

1.1. Publications in the IAEA Nuclear Security Series provide nuclear security guidance to States to assist in establishing, implementing and maintaining their national nuclear security regimes.

1.2. Nuclear security culture is defined as "The assembly of characteristics, attitudes and behaviour of individuals, organizations and institutions which serves as a means to support, enhance and sustain nuclear security" [1–3]. As this definition indicates, nuclear security culture is an important component of an effective nuclear security regime. Essential Element 12 (para. 3.12(c)) of the Nuclear Security Fundamentals [4] states that "Developing, fostering and maintaining a robust *nuclear security culture*" contributes to the sustainability of a nuclear security regime, and the Nuclear Security Recommendations publications [1–3] underscore the importance of a robust nuclear security culture. Nuclear security culture[1] is also one of the 12 Fundamental Principles of the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material [5], which entered into force in May 2016 and states that "All organizations involved in implementing physical protection should give due priority to the security culture, to its development and maintenance necessary to ensure its effective implementation in the entire organization."

1.3. The current publication is intended to help States develop, enhance and maintain a robust nuclear security culture; it complements and follows:

(a) IAEA Nuclear Security Series No. 7, Nuclear Security Culture [6], which provides a model for nuclear security culture and identifies the roles and responsibilities of various nuclear security stakeholders;
(b) IAEA Nuclear Security Series No. 28-T, Self-assessment of Nuclear Security Culture in Facilities and Activities [7], which provides a methodology for nuclear security culture self-assessment.

1.4. The IAEA has also issued several publications on enhancing nuclear safety culture [8–13]. Much of the information in these publications also applies to nuclear security culture, as both nuclear safety culture and nuclear security culture

[1] For historical reasons, nuclear security culture is referred to in the Amendment to the Convention on the Physical Protection of Nuclear Material [5] as 'security culture'.

are part of an overall organizational culture. For example, relevant requirements for enhancing nuclear safety culture are specified in IAEA Safety Standards Series No. GSR Part 2, Leadership and Management for Safety [8]. In addition, both nuclear safety culture and nuclear security culture focus on promoting the attitudes and behaviour required to support each discipline.

OBJECTIVE

1.5. This publication is intended to provide practical guidance on how to implement a systematic approach to enhancing nuclear security culture. This publication is provided for use by States; competent authorities with responsibilities relating to nuclear security; and the operators of associated facilities and activities, including managers and other personnel[2].

SCOPE

1.6. A graded approach can be used to implement nuclear security culture enhancement, as described in this publication, for nuclear and other radioactive material and associated facilities and activities. The enhancement of nuclear security culture, as described, may also be applied to nuclear security culture in organizations with responsibilities for the security of nuclear and other radioactive material out of regulatory control, but detailed guidance for those types of organization is not provided in this publication.

1.7. As managers can strongly affect nuclear security culture, this publication includes guidance on enhancing management skills to better support nuclear security and the stakeholder organization as a whole.

1.8. This publication addresses enhancing nuclear security culture within all stakeholder organizations, including operators or competent authorities who regulate or support regulated entities.[3] The operator has the primary responsibility for implementing nuclear security measures for nuclear and other radioactive

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[2] In the context of this publication, personnel are all people (including staff, managers, contractors, vendors and collaborators) who work to support an associated facility or associated activity. A manager is any person who has authority over a group of subordinates.

[3] In the context of this publication, the term ‘organization’ is used to mean any entity associated with nuclear and other radioactive material (e.g. an operator of a facility or activity, a competent authority, a guard or response force, the police, law enforcement, customs).

material, and associated facilities and associated activities. These responsibilities are overseen and supported by various competent authorities, such as regulatory bodies and law enforcement agencies, who need a robust nuclear security culture to function effectively. This publication is also intended for any stakeholders whose only involvement with regulated facilities or activities is through their authorized access to sensitive information about such facilities or activities.

STRUCTURE

1.9. Section 2 highlights the roles, responsibilities and activities of those involved in a nuclear security culture enhancement programme. Section 3 describes the key elements of such a programme. The annexes provide detailed examples and information on nuclear security culture. Annex I provides examples of how the attitudes and behaviour of personnel impact the overall effectiveness of nuclear security. Annex II provides a matrix of nuclear security culture indicators and examples of activities that can be undertaken to enhance nuclear security culture. Annex III describes the training that personnel, and specifically managers, can take to enhance nuclear security culture. Annex IV provides a sample nuclear security culture code of conduct. Annex V provides a completed action plan sample. Annex VI summarizes how nuclear security culture can evolve.

2. ROLES, RESPONSIBILITIES AND ACTIVITIES FOR THE ENHANCEMENT OF NUCLEAR SECURITY CULTURE

2.1. Fundamental Principle F of the Amendment to the Convention on the Physical Protection of Nuclear Material [5], on security culture, requires all organizations involved in implementing physical protection to give due priority to nuclear security culture.

2.2. In addition, Essential Element 12 of the IAEA Nuclear Security Fundamentals [4] states:

> "A *nuclear security regime* ensures that each *competent authority* and *authorized person* and other organizations with nuclear security

responsibilities contribute to the sustainability of the *regime* by: … Developing, fostering and maintaining a robust *nuclear security culture*".

2.3. An effective nuclear security culture contributes to the ability of personnel to effectively mitigate potential threats to nuclear and other radioactive material and associated facilities and activities. Moreover, an effective nuclear security culture instils attitudes and behaviour that result in personnel adopting a more rigorous and prudent approach to their nuclear security responsibilities. It can also increase vigilance and increase correct reactions to abnormal and unexpected situations. Within organizations that have a strong nuclear security culture, the increased level of vigilance and professional adherence by all personnel to good nuclear security practices should lead to personnel being less likely to commit a malicious act.

EFFECTIVE NUCLEAR SECURITY CULTURE

2.4. An effective nuclear security culture strengthens nuclear security by encouraging personnel, including managers, to do the following:

(a) Improve their understanding of threats to, and vulnerabilities of, nuclear and other radioactive material and associated facilities and activities, as well as sensitive information;
(b) Build a common understanding and awareness of nuclear security at all levels (including the State, competent authorities, facilities and activities), and enhance coordination among nuclear security stakeholders;
(c) Involve all stakeholders in promoting the importance of nuclear security;
(d) Build an atmosphere of individual and collective responsibility for nuclear security;
(e) Have a sense of pride in performance and job satisfaction, potentially dissuading disgruntled personnel who might carry out malicious acts from doing so;
(f) Increase their commitment to security objectives and exhibit behaviour supporting nuclear security that is beyond compliance with job requirements;
(g) Promote appropriate allocation of human, technical and financial resources to nuclear security;
(h) Reduce human error and its impact on the effectiveness of nuclear security systems and measures;
(i) Establish an atmosphere of respect for all nuclear security personnel;
(j) Act on lessons learned and other feedback, as appropriate, to continuously improve nuclear security.

2.5. Each organization already has an existing nuclear security culture. However, this nuclear security culture can be enhanced. An enhanced nuclear security culture will increase the stakeholder's ability to maintain effective nuclear security and support the continuous improvement of nuclear security. A collective effort by personnel to enhance nuclear security has benefits. For example, personnel in facilities or involved in activities with a strong nuclear security culture might be more vigilant and have fewer inspection findings and enforcement actions. This can improve relationships among stakeholders, including the public.

2.6. Moreover, the human factor plays a critical role in ensuring that the nuclear security regime can meet evolving challenges and threats. Personnel who understand that their contribution to nuclear security is important — owing to a strong nuclear security culture — will be motivated to implement nuclear security more effectively and vigilantly than personnel in an organization with a weak nuclear security culture. In this way, these personnel help improve nuclear security as a whole.

2.7. The approach to enhancing nuclear security culture presented in this publication can continuously improve nuclear security and help organizations successfully fulfil their missions. Using the roles and responsibilities outlined in the remainder of Section 2, as well as the key elements for a programme at the organizational level to enhance nuclear security culture outlined in Section 3, each organization with responsibility for nuclear security can take steps to minimize the gap between the current state of the nuclear security culture and the desired state.

ROLES, RESPONSIBILITIES AND ACTIVITIES AT THE STATE LEVEL

2.8. Reference [6] states:

> "Security culture has three major components. The first concerns the policy that the State wishes to put into practice, in particular given the national and international contexts. The second is the organization introduced within each body concerned, particularly to apply the policy fixed by the State. In this component, a distinction must be made between what comes under the organization itself and what concerns its managers. The third component is the attitude adopted by the various individuals at all levels to implement this policy and to incorporate it into their work."

2.9. In other words, the nuclear security culture within a State has three categories of actors with roles relevant to nuclear security:

(a) The State itself.
(b) Organizations associated with nuclear and other radioactive material, such as operators of facilities and activities, competent authorities, guard or response forces, police, law enforcement and customs authorities.
(c) Individuals, including the following:
    (i) The head of the organization[4];
    (ii) Managers within the organizations;
    (iii) Other personnel, including staff, contractors, vendors or other collaborators, who work in or support facilities and activities.

2.10. Additional roles that might be identified by the State or by organizations to enhance nuclear security include, at the national level, a nuclear security culture enhancement group, and at the organizational level, nuclear security culture coordinators, whose potential responsibilities are discussed further in paras 2.21–2.37 and 2.54–2.63, respectively.

2.11. The following subsections provide a set of roles, responsibilities and activities that various stakeholders can use to enhance nuclear security.

Roles, responsibilities and activities of the State

2.12. Depending on the structure of the State's nuclear security regime, the State should undertake multiple activities to enhance nuclear security culture within relevant organizations; some of these activities can be delegated to a competent authority. Activities that may be performed by the State or its delegate are described in paras 2.13–2.20.

Establishing policy

2.13. The State should promote a strong nuclear security culture. In so doing, the State may establish, develop and implement a policy for nuclear security culture enhancement within its legislative and regulatory framework for nuclear security, as appropriate, given the structure of the State's nuclear security regime. Establishing, developing and implementing a policy for nuclear security culture enhancement will help States build a robust nuclear security culture to meet these

[4] The head of an organization might be an administrator, chief, director or other person in charge.

obligations under the Amendment to the Convention on the Physical Protection of Nuclear Material [5] and the objectives of Essential Element 12 of Ref. [4].

2.14. A State's policy for nuclear security culture enhancement should have three major objectives:

(a) Continuously improve the effectiveness of the nuclear security regime;
(b) Emphasize the importance of taking personal responsibility for nuclear security;
(c) Promote, establish and sustain the attitudes and behaviour that support effective nuclear security and personal responsibility for nuclear security.

2.15. The establishment, development and implementation of the policy reflects a clear understanding of the need to enhance nuclear security culture as well as its major aspects. Some examples of the potential impact of nuclear security culture on the effectiveness of nuclear security at the organizational level are described in Annex I.

2.16. The specifics of the policy for the enhancement of nuclear security culture could be based on an assessment of the threat as well as activities undertaken within the State involving nuclear and other radioactive material. A range of nuclear security stakeholders should be involved in the development of the State's policy for the enhancement of nuclear security culture.

Designating responsibilities

2.17. The State may designate responsibilities for nuclear security culture enhancement to organizations that are responsible, either directly or indirectly, for the protection of nuclear and other radioactive material and associated facilities and activities. These organizations will vary depending on the structure of the State's nuclear security regime. Organizations with responsibilities designated by the State include the following:

(a) Competent authorities;
(b) Those who promote or manage the use of nuclear energy (e.g. training centres, fuel fabrication facilities);
(c) Those who are licensed or authorized to use, store or transport nuclear and other radioactive material for industrial research and other peaceful uses (e.g. nuclear facilities, hospitals);
(d) Guard or response forces and customs authorities.

Allocating resources

2.18. The State should allocate resources to appropriate competent authorities in order for them to conduct nuclear security culture enhancement activities (e.g. providing oversight, designating responsibilities, drafting regulations, providing recommendations, defining requirements, providing training).

Assigning responsibility

2.19. The State may choose to establish a nuclear security culture enhancement group to oversee nuclear security culture enhancement efforts in the State. If a nuclear security culture enhancement group is established, this group will set the strategy, guidelines and structure supporting the State's programme for nuclear security culture enhancement. This group should include representatives of the State, competent authorities, operators of facilities and activities, nuclear safety and security experts, psychologists, sociologists and other stakeholders (e.g. representatives of nuclear security support centres). The nuclear security culture enhancement group sets the strategy to enhance the State's nuclear security culture and provides high level oversight for its implementation. The nuclear security culture enhancement group also provides a central mechanism for coordinating nuclear security culture efforts rather than a regulatory mechanism. The roles and responsibilities of the nuclear security culture enhancement group are discussed in more detail in paras 2.21–2.37.

Additional responsibilities of the State

2.20. The State and competent authorities have several additional responsibilities for nuclear security culture enhancement, including the following:

(a) Promoting the enhancement of nuclear security culture in organizations under its jurisdiction.
(b) Educating regulatory inspectors so that they better understand and evaluate nuclear security culture.
(c) Overseeing, through the regulatory body, the operators' nuclear security culture efforts. The regulatory body should be independent of the operators.
(d) Advising stakeholders to cooperate with international organizations on nuclear security.
(e) Encouraging organizations to participate in relevant nuclear security meetings and workshops, as appropriate.

Roles, responsibilities and activities of the nuclear security culture enhancement group

2.21. As stated in para. 2.19, the State may establish a nuclear security culture enhancement group to set the strategy, guidelines and structure supporting the State's policy for nuclear security culture enhancement.

2.22. The nuclear security culture enhancement group should maintain independence from the regulatory body. However, this should not prevent representatives of the regulatory body and the operator from serving in the nuclear security culture enhancement group. Having representatives of both these organizations serve in the group would promote information sharing on nuclear security culture enhancement. For example, the regulatory body could provide information to the operators about nuclear security culture requirements and make sure indicators of lowered performance are being addressed. In addition, including a human factors expert, a psychologist, a sociologist, a nuclear security expert, a nuclear safety expert and members of the State will increase the effectiveness of the nuclear security culture enhancement group.

2.23. The members of the nuclear security culture enhancement group should undertake introductory training to learn core concepts and gain a common understanding of nuclear security culture (for additional information about training for members of the nuclear security culture enhancement group, see para. 3.35).

2.24. Activities that could be performed by the nuclear security culture enhancement group, if the State decides to convene such a group, are described in paras 2.25–2.37.

Developing strategy

2.25. The nuclear security culture enhancement group should develop a strategy for the enhancement of nuclear security culture within the State. The strategy should include identifying key elements to be included in organizations' programmes (see Section 3 for suggestions for key elements), drafting and distributing guidance on implementing the strategy and providing high level oversight of its implementation.

2.26. When developing the strategy, the nuclear security culture enhancement group should review the existing practices and approaches including, if appropriate, those used to enhance nuclear safety.

2.27. The nuclear security culture enhancement group should also determine a process to review and update the strategy for the enhancement of nuclear security culture. The need for modifications of this strategy might be identified after pilot programmes have been conducted and assessed, after results of self-assessments are analysed or if trends indicating a pattern of problems in nuclear security within the State are identified. It is recommended that the nuclear security culture enhancement group regularly update the strategy.

2.28. The following are questions to consider when developing the nuclear security culture enhancement strategy:

(a) Are the expectations for nuclear security clearly communicated to stakeholders, including operators?
(b) Do competent authorities and operators consider nuclear security and nuclear safety to be equally important?
(c) Are personnel receiving training in the appropriate skills and knowledge to effectively conduct their work and respond to abnormal and unexpected situations?
(d) Is there a State level event reporting system that distributes relevant lessons learned to avoid repeated errors?
(e) Is there a State level requirement for the operators of facilities and activities to conduct self-assessments on nuclear security culture?
(f) Is there a State level requirement to conduct root cause analyses and does it cover human factor issues?
(g) Is there a State level requirement for the operator of a facility or activity to implement a personnel assistance programme to decrease potential insider threats (see para. 3.51 for additional information on personnel assistance programme)?
(h) Has a training analysis been conducted for personnel?
(i) Do managers receive training in enhancing nuclear security culture and motivating personnel?

Providing support

2.29. The nuclear security culture enhancement group should meet as needed to identify and develop support materials, such as training, poster campaigns and reference documents for the nuclear security culture coordinator.

2.30. As part of enhancing nuclear security culture within the State, organizations may identify a nuclear security culture coordinator: an officially designated

person or persons to lead an organization's efforts to enhance nuclear security culture (see paras 2.42, 2.43 and 2.54–2.63).

2.31. The nuclear security culture enhancement group should identify content for and authorize the development of training materials and other resources for the nuclear security culture coordinators. The group should also establish a process to provide nuclear security culture coordinators with initial and refresher training. Training topics could include core concepts of nuclear security culture, how to conduct self-assessments, how to develop and implement an action plan and how to implement change.

2.32. The nuclear security culture enhancement group should regularly meet with the nuclear security culture coordinators to review progress, identify and resolve common issues, share good practices and provide the nuclear security culture coordinators with resources (e.g. training materials, posters, videos, brochures, newsletters) to support an enhanced nuclear security culture programme.

2.33. The nuclear security culture enhancement group members should also (a) mentor the nuclear security culture coordinators, (b) keep the nuclear security culture coordinators up to date on the development of the action plan and topics relating to nuclear security and nuclear security culture, and (c) advise nuclear security culture coordinators about solutions to issues that can affect action plan items.

Evaluating and improving effectiveness

2.34. The nuclear security culture enhancement group should maintain current knowledge regarding nuclear security events that have occurred and evolving domestic and international threats. The group should analyse these events and consider how an enhanced nuclear security culture could address or mitigate them. In this way, the nuclear security culture enhancement group's efforts will remain relevant and continue to address evolving threats to nuclear and other radioactive material and associated facilities and activities.

2.35. The nuclear security culture enhancement group should also provide information to the nuclear security culture coordinators on nuclear security events and trends that might help identify areas for improvement, as applicable.

Developing a code of conduct

2.36. The nuclear security culture enhancement group should develop a model nuclear security culture code of conduct for personnel within relevant organizations. More information on a nuclear security culture code of conduct is provided in paras 3.52 and 3.53.

Advocating for nuclear security culture

2.37. Members of the nuclear security culture enhancement group may advocate to strengthen nuclear security culture within their organizations and lobby for resources, regulations, oversight and general infrastructure needs to support the State's nuclear security regime. In addition, stakeholders should regularly report relevant progress, achievements and issues to the nuclear security culture enhancement group to help evaluate and improve the effectiveness of nuclear security culture.

ROLES, RESPONSIBILITIES AND ACTIVITIES AT THE ORGANIZATIONAL LEVEL

2.38. Each organization with nuclear security responsibilities may develop and implement a programme for the enhancement of nuclear security culture. Before developing and implementing this programme, each organization should identify the new attitudes and behaviour necessary to develop and maintain a strong nuclear security culture. Once the characteristics of a strong nuclear security culture and supportive practices are identified, each stakeholder should then assess the current state of nuclear security culture and determine the gap between the current state and the desired state.

Roles, responsibilities and activities of the head of the organization

2.39. The head of an organization with nuclear security responsibilities should pursue implementation activities for the enhancement of nuclear security culture. He or she thereby promotes attitudes and behaviour that support a continuous cycle of improving nuclear security effectiveness (see paras 2.40–2.53).

Announcing programme

2.40. The head of an organization with nuclear security responsibilities should announce the programme for the enhancement of nuclear security culture to

personnel. The head of the organization should also describe how the programme is to be implemented in accordance with the guidance on, and the strategy for, the enhancement of nuclear security culture provided by the State or the nuclear security culture enhancement group, if established. For example, the head of the organization may issue an official document to all personnel announcing the establishment of the programme for the enhancement of nuclear security culture, stressing the need for cooperation.

2.41. In addition, the head of the organization is responsible for deciding how best to implement the programme for the enhancement of nuclear security culture.

2.42. The head of an organization with nuclear security responsibilities may designate a person or persons who will assume the roles and responsibilities of the nuclear security culture coordinator, described in more detail in paras 2.54–2.63.

2.43. The head of the organization should ensure that the nuclear security culture coordinators complete training for their roles and responsibilities.

Allocating resources

2.44. The head of the organization should provide for the appropriation of the resources to be allocated to the programme for the enhancement of nuclear security culture. The head of the organization should also support the provision of nuclear security culture training to all personnel.

Authorizing code of conduct

2.45. The head of the organization should authorize a nuclear security culture code of conduct (see example in Annex IV) and act in accordance with the code of conduct. More information on this topic is provided in paras 3.52 and 3.53.

Authorizing self-assessment review and results

2.46. The head of the organization should authorize nuclear security culture self-assessments, review the results of the assessments and distribute the results to personnel.

Reviewing action plan and results

2.47. As discussed in more detail in paras 3.12–3.30, a nuclear security culture action plan should be developed for the organization. The action plan should

describe enhancement efforts, which might include self-assessments. Although the nuclear security culture coordinator is responsible for developing and implementing the action plan, the head of the organization should review and authorize the nuclear security culture action plan, ensure that resources are available to implement it and oversee its implementation.

Evaluating and improving effectiveness

2.48. The head of the organization should review the outcomes and lessons learned from the nuclear security culture enhancement programme. The head of the organization should also give feedback to the nuclear security culture coordinator and nuclear security culture enhancement group, if applicable.

2.49. In addition, the head of the organization should establish mechanisms for reporting abnormal occurrences and nuclear security concerns, tracking resolution of corrective actions and ensuring that corrective actions are taken in a timely manner.

Demonstrating leadership

2.50. Reference [6] states:

> "Management systems must be put in place for each security function to define expectations, implement and maintain processes, measure progress, assess compliance, improve performance on the basis of experience, and manage change."

2.51. Examples of elements of effective management systems are described in section 4.3 of Ref. [6]. The head of the organization should review these management system elements and ensure that they are implemented, as appropriate.

2.52. The head of the organization should act as a positive role model and support effective nuclear security culture by adhering to all nuclear security requirements, showing leadership behaviour as discussed in Ref. [6] and establishing the expectation that personnel adhere to high standards of individual and collective behaviour in support of a strong nuclear security culture.

2.53. In addition, the head of the organization should foster leadership behaviour among all levels of personnel through the following:

— Establishing clear expectations and accountability regarding personnel behaviour relating to nuclear security.
— Communicating nuclear security priorities to personnel.
— Establishing mechanisms to promote behaviour that supports and enhances nuclear security, such as a programme that encourages and acts on suggestions from personnel. More information on a personnel suggestion programme is provided in para. 3.49.

Roles, responsibilities and activities of the nuclear security culture coordinator

2.54. As stated in para. 2.30, as part of enhancing nuclear security culture within the State, each organization may identify a nuclear security culture coordinator to lead the organization's efforts in enhancing nuclear security culture.

2.55. Depending on the scope of the nuclear security responsibilities of the organization, the position of nuclear security culture coordinator may be a full-time position or a part-time position. If the position is part-time, the roles and responsibilities of the nuclear security culture coordinator may be shared and included in those undertaken by a person or persons in another nuclear security related position.

2.56. The nuclear security culture coordinator should promote and support the attitudes and behaviour necessary for continual improvement of nuclear security culture within the organization. The nuclear security culture coordinator is responsible for emphasizing the importance of nuclear security, reminding all personnel of the credibility of threats to nuclear and other radioactive material and associated facilities and activities. The nuclear security culture coordinator should continually motivate personnel to maintain the effectiveness of the nuclear security system.

2.57. The nuclear security culture coordinator should have a general knowledge of nuclear and other radioactive material associated with the organization, as applicable, as well as the relevant nuclear security requirements. He or she should be positioned at a high enough level, or have the appropriate level of authority, to initiate changes within the organization and to regularly inform the head of the organization of the efforts, progress and results.

2.58. Depending on the size of the organization, the nuclear security culture coordinator might have assistants with complementary skills and experience in nuclear material accounting and control, radioactive source registry, physical protection, psychology, sociology, safety, transport, or guard or response forces. For example, assistants might (a) provide advice on how to develop a self-assessment questionnaire, (b) give input on appropriate scenarios to be illustrated in videos or (c) review posters and training materials for technical accuracy. Assistants may also help implement nuclear security culture enhancement activities in different buildings, departments or areas.

2.59. The nuclear security culture coordinator may undertake a number of activities to enhance nuclear security culture (see paras 2.60–2.63).

Developing nuclear security culture action plan

2.60. The nuclear security culture coordinator should establish the goals of the nuclear security culture enhancement programme and develop an action plan describing future enhancement efforts, which may include self-assessment. The head of the organization is responsible for approving the nuclear security culture action plan.

2.61. The nuclear security culture coordinator should regularly review action plan progress, track accomplishments and adjust the nuclear security culture action plan and its associated details as appropriate. Less frequently, the nuclear security culture coordinator should lead a self-assessment to evaluate the results of the nuclear security culture enhancement programme. He or she should adjust the nuclear security culture action plan as appropriate. More detailed information on the development and implementation of the nuclear security culture action plan is provided in paras 3.12–3.30.

Reporting progress made and status of nuclear security culture within the organization

2.62. The nuclear security culture coordinator should regularly report action plan progress as well as the status of nuclear security culture activities to the head of the organization.

Developing code of conduct

2.63. The nuclear security culture coordinator should develop and disseminate the nuclear security culture code of conduct (see example in Annex IV) and act in

accordance with the code of conduct. More information on this topic is provided in paras 3.52 and 3.53.

ROLES, RESPONSIBILITIES AND ACTIVITIES AT THE INDIVIDUAL LEVEL

Roles, responsibilities and activities of managers

2.64. Reference [6] states:

> "Managers influence culture throughout their organization through their leadership and management practices. With sustained effort, and by employing the incentives and disincentives at their disposal, they must establish patterns of behaviour and even alter the physical environment. Senior managers are responsible for defining and revising policies and protection objectives; operational managers are in charge of initiating practices that comply with these objectives. Through their behaviour, managers demonstrate their commitment to nuclear security and, in so doing, play an important role in promoting nuclear security culture within the organization."

2.65. Effective nuclear security depends on individual managers. Their involvement is key to establishing a strong nuclear security culture because personnel will judge what is important by the words and behaviour of these managers. Managers can enhance nuclear security culture through good management techniques, by being a positive nuclear security role model, by obeying nuclear security requirements and by following nuclear security procedures. Managers should complete nuclear security culture training and stay up to date with nuclear security trends to better understand nuclear security culture and set an example for personnel.

2.66. Managers should hold themselves to the same level of accountability as subordinates for following nuclear security requirements. They should also report, without fear of reprisal, any unusual occurrences and create a work environment that encourages personnel to report nuclear security concerns and abnormal behaviour. In addition, managers will sign the nuclear security culture code of conduct, promote its contents and act accordingly. Managers must also protect all sensitive information and assets.

2.67. Managers are encouraged to maintain an overall positive work environment. Such a work environment can increase productivity and decrease safety and

security events. It might also reduce potential insider threats by increasing job satisfaction, thereby decreasing the possibility that personnel will perform, support or ignore a malicious act.

2.68. Managers should use effective management skills to improve the work environment and strengthen nuclear security culture. They should strive to achieve the following:

(a) Resolve conflict in a timely manner;
(b) Support the implementation of the management systems identified in Ref. [6], as authorized by the head of the organization;
(c) Hold personnel accountable for their behaviour and continually motivate them to enhance nuclear security effectiveness;
(d) Encourage personnel to have the appropriate questioning attitude that supports continuous improvement of nuclear security;
(e) Actively support nuclear security culture training for subordinates as well as verify that personnel complete such training when necessary.

2.69. In addition, managers should complete all required training and seek new opportunities to improve their management skills. These skills might include effective communication and motivation of personnel (additional information on management training topics is provided in Annex III).

2.70. Managers should show commitment to nuclear security by supporting organizational nuclear security policies and procedures as well as the nuclear security culture action plan and self-assessments. Managers may underscore the importance of nuclear security by holding regular meetings to define expectations and check for understanding of nuclear security requirements. The nuclear security culture coordinator should be invited to the meetings to discuss activities under way to enhance nuclear security culture and to ask for ideas for additional activities that could improve the effectiveness of nuclear security.

2.71. Managers should take the opportunity at forums such as meetings, presentations, and informal and formal gatherings to stress to personnel the importance of (a) protecting nuclear and other radioactive material and associated facilities and activities, as well as sensitive information and assets, and (b) adhering to nuclear security requirements. Managers should maintain appropriate information on nuclear security and nuclear security culture in a central location and encourage personnel to access these resources. This information might include nuclear security culture training materials, visual aids (e.g. posters, policy, videos) and reference documents (e.g. brochures). Managers

should share these resources with personnel and have the resources displayed inside and outside their offices.

2.72. In addition, managers should propose enhancements and revisions to nuclear security requirements based on periodic reviews and regular walkthroughs to observe subordinates in the field. Managers should ask for feedback to help adjust the nuclear security culture action plan. Managers may interact with personnel during walkthroughs to discuss nuclear security concerns as well as ideas to improve work processes, environments and levels of job satisfaction. Managers can reinforce good behaviour through constructive feedback during the walkthroughs.

2.73. Managers should review the effectiveness of the current nuclear security system to determine if it is adequate for current and future circumstances. In doing so, they may conduct regular risk assessments, participate in nuclear security exercises and determine how to eliminate deficiencies.

2.74. Overall, managers should seek to continually improve nuclear security effectiveness and achieve the three stages of nuclear security culture (see Annex VI for further information):

(a) Stage 1: Nuclear security is based on rules and regulations.
(b) Stage 2: Nuclear security becomes an organizational goal.
(c) Stage 3: Nuclear security is continually improved.

Roles, responsibilities and activities of personnel

2.75. Personnel at all levels of organizations should support nuclear security culture enhancement through the following activities:

(a) Protecting all sensitive information and assets;
(b) Taking responsibility for nuclear security;
(c) Completing all required nuclear security training, and giving feedback on its effectiveness and value;
(d) Complying with nuclear security rules, regulations and procedures, and proposing changes as needed;
(e) Knowing how to access nuclear security and nuclear security culture resources;
(f) Reporting abnormal activity and nuclear security concerns;
(g) Supporting managers in creating and maintaining a work environment that encourages reporting of abnormal activity and nuclear security concerns;

(h) Suggesting improvements to nuclear security and its effectiveness;
(i) Giving feedback to managers and the nuclear security culture coordinator about programme effectiveness, training, job satisfaction and work environment;
(j) Questioning unusual activities performed by other personnel;
(k) Encouraging positive nuclear security behaviour in others;
(l) Adhering to the nuclear security culture code of conduct.

3. KEY ELEMENTS OF A PROGRAMME FOR THE ENHANCEMENT OF NUCLEAR SECURITY CULTURE

3.1. Organizations can consider all elements identified in this publication for inclusion in a programme for the enhancement of nuclear security culture. However, a graded approach can help prioritize the implementation of the various elements according to the potential consequences of possible malicious acts. In turn, these potential consequences depend on the quantity and category of nuclear and other radioactive material in storage or use and on the size and type of facility, activity or organization. When establishing a programme, the head of the organization and the management should first refer to existing infrastructure, procedures and processes for support and maintenance.

3.2. A strong nuclear security culture includes effective change management accompanied by detailed documentation. It is important to refer to this documentation, as well as current security requirements, before implementing changes.

3.3. In addition, quality assurance can contribute to a strong nuclear security culture. To remain effective, nuclear security needs a high degree of rigour, control and assessment. Therefore, quality assurance practices for nuclear security should be well documented and applied to ensure effectiveness.

3.4. An effective nuclear security culture also depends on how well the organization is integrated. Often, certain stakeholder functions are separate from other functions, either geographically or owing to organizational structure. In these cases, different priorities can develop, resulting in uneven policies and standards within the different functions. It is important that personnel frequently interact to share information. It is also important that managers communicate the same prioritization of nuclear security throughout the stakeholder organization.

REGULATORY BASIS

3.5. A regulatory basis is a mechanism that helps States prescribe a formal plan for implementing elements of a nuclear security culture enhancement programme. Before developing the regulations, States may pilot the implementation of a nuclear security culture enhancement policy to determine the most effective elements to include in the regulation.

3.6. If a regulatory basis is unavailable, policy or guidelines issued by the State, the competent authority or the organization may be used as a basis for the enhancement programme for nuclear security culture.

SELF-ASSESSMENT

3.7. As is suggested in Ref. [7], a self-assessment method, with indicators for assessment, helps stakeholders decide how best to strengthen nuclear security culture. A nuclear security culture self-assessment can help organizations identify (a) the existing beliefs and attitudes held by personnel that support the effectiveness of nuclear security and (b) ways to improve these attitudes and address signs of complacency.

3.8. Various methods of assessment, including surveys, interviews, focus groups, observations and document review, can help organizations assess their existing nuclear security culture. The most reliable feedback comes from using a combination of these assessment methods. Reference [7] provides an approach to help organizations determine the level of nuclear security culture within an organization. References [9, 10] provide additional information about specific methods of self-assessment for safety culture and the advantages and disadvantages associated with each method.

3.9. Completing a self-assessment at the beginning of programme implementation, with follow-on assessments repeated on a regular basis, can produce insights about which specific efforts to include in the nuclear security culture action plan.

3.10. An independent assessment of nuclear security culture can complement the self-assessment process. Often, personnel from outside the organization can more readily detect nuclear security culture strengths and weaknesses than those within the organization. Notably, during an oversight activity, competent authorities play a key role in observing and identifying these strengths and weaknesses as well as in promoting a robust nuclear security culture. Nuclear security culture training of

representatives of competent authorities might enable them to better observe and identify indicators of a strong nuclear security culture and assess gaps that might need to be addressed.

3.11. Some important nuclear security culture indicators that are more easily identified by an external perspective include change management, quality assurance, integration and findings from external nuclear security reviews.

NUCLEAR SECURITY CULTURE ACTION PLAN

3.12. The development and implementation of a nuclear security culture action plan is a key activity in nuclear security culture enhancement. A nuclear security culture action plan, which should be approved by the head of the organization, gives nuclear security culture coordinators direction for implementing the enhancement programme for nuclear security culture in the organization.

3.13. In the nuclear security culture action plan, the nuclear security culture coordinator should describe the following:

(a) Specific goals for the enhancement programme for nuclear security culture;
(b) Specific actions to be taken to achieve those goals;
(c) The personnel responsible for these actions;
(d) The time frame in which the actions should be completed;
(e) The resources needed to complete the actions;
(f) Potential barriers for completing the actions;
(g) Steps to be taken to complete the actions;
(h) Expected results of the actions.

3.14. The actions described in the nuclear security culture action plan may include training managers and other personnel conducting self-assessments, implementing poster campaigns, promoting the importance of nuclear security and familiarizing personnel with the goals of the programme for the enhancement of nuclear security culture (see Annex V for suggested efforts to include in the nuclear security culture action plan).

3.15. The nuclear security culture coordinator ensures that the action plan includes a range of efforts that support a strong nuclear security culture. This includes efforts to educate personnel about the existence of credible threats to nuclear and other radioactive material and associated facilities and activities, as well as sensitive information and assets. Such information on threats can be

communicated in a general, non-sensitive manner to all personnel and in more detail to those with a need to know. Efforts to support a strong nuclear security culture should also include educating personnel about the importance of nuclear security and the consequences of ineffective nuclear security to themselves, their families, the public, the organization, the environment and the nuclear industry. Efforts should promote attitudes and behaviour that support continual improvement of nuclear security.

3.16. In addition, the nuclear security culture action plan should address the impact on nuclear security of human factors and human error. The plan should also address enhancement of the human element of nuclear security and efforts to analyse nuclear security events, track trends and use lessons learned to improve nuclear security.

3.17. The nuclear security culture action plan should be modified as needed (e.g. owing to self-assessment results, changes in threat, trends in nuclear security events, inspection results, changes in the organization's mission).

3.18. Paragraphs 3.19–3.30 outline the steps to be taken by the nuclear security culture coordinator to create a nuclear security culture action plan, including development, initial review, approval, implementation, final review and revision (see Annex V for an example action plan).

Development of the action plan

3.19. After an initial self-assessment and evaluation (as described in paras 3.7–3.11) and before drafting a nuclear security culture action plan, the nuclear security culture coordinator may answer the following questions:

(a) What are the key concerns identified in the self-assessment results?
(b) What new way of working is needed to meet the organization's nuclear security objectives?
(c) What new attitudes and behaviour are needed to support the new way of working?
(d) Which current characteristics of the organization's nuclear security culture can be further developed to achieve the desired state?
(e) What actions might help improve nuclear security culture in the organization?
(f) What changes are needed for the organization to achieve its nuclear security objectives?

3.20. The nuclear security culture coordinator should identify and document any actions already being implemented to enhance nuclear security culture in the organization. Since a parallel approach might enhance nuclear safety culture and nuclear security culture, the nuclear security culture coordinator should also review efforts at the organization or elsewhere to enhance nuclear safety culture. The nuclear security culture coordinator should know the nuclear security culture enhancement group's strategy. He or she should also know domestic and international nuclear security trends, recent nuclear security issues within the organization and the specific concerns of nuclear security personnel within the organization.

3.21. The nuclear security culture coordinator should define specific actions to include in the nuclear security culture action plan. These actions should build on the strengths of the nuclear security culture of the organization and reduce its weaknesses as identified in the self-assessment. The actions contained in the nuclear security action plan may be developed in a SMART (specific, measurable, achievable, relevant and time-bound) manner:

(a) Specific: The nuclear security culture action plan addresses the action goals and how they contribute to nuclear security. A specific action should answer five questions: What will be accomplished? Why will it be accomplished? Who will be involved? Where will it take place? Which requirements and constraints are expected?
(b) Measurable: The action plan addresses how success can be measured. This includes methods that management can use to judge whether the action has been completed. A specific action should include criteria for measuring progress.
(c) Achievable: The action is realistic, attainable and in accord with the typical performance of the organization.
(d) Relevant: The action enhances nuclear security.
(e) Time-bound: The action is accomplished within a set time frame. A commitment to a deadline helps a team focus their efforts on completing the action on or before the due date and provides a sense of urgency.

3.22. The nuclear security culture coordinator should have a process to track action plan progress. Responsible parties should be identified for each action in the plan, and these parties should be held accountable by management for successful completion of each action. Sample enhancement activities that are grouped in line with nuclear security culture indicators (Annex II) might facilitate the development or identification of actions.

Review with head of the organization

3.23. Once the nuclear security culture coordinator drafts an initial nuclear security culture action plan, the nuclear security culture coordinator should meet with the head of the organization and explain each proposed task, expected outcomes and resource needs. The head of the organization should ask questions and provide feedback.

Approval by the head of the organization

3.24. The nuclear security culture coordinator should modify the nuclear security culture action plan on the basis of feedback and submit the final version for approval by the head of the organization. Once approved, the nuclear security culture coordinator files the document, keeping it accessible for later reference.

Implementation

3.25. The nuclear security culture coordinator should communicate the approved nuclear security culture action plan to personnel, including managers and those responsible for the implementation of the action plan. The nuclear security culture coordinator may also post the nuclear security culture action plan on an internal web site or within the organization, as appropriate, to help familiarize personnel with the plan.

3.26. The nuclear security culture coordinator should hold regular meetings with the personnel responsible for completing the tasks in the nuclear security culture action plan for updates on progress, costs and any challenges. The nuclear security culture coordinator should also make himself or herself available for questions on the programme and action plan. Communication about programme goals for the enhancement of nuclear security culture can help personnel better understand the programme, why it exists and the goals and actions to be undertaken. Furthermore, if personnel fully understand the purpose of the nuclear security culture action plan, they might be more willing to give feedback, work more effectively as individuals and work as a group to support its implementation.

Review of the outcomes

3.27. Throughout the implementation of the nuclear security culture action plan, the nuclear security culture coordinator should monitor the progress and results of each action. The nuclear security culture coordinator should periodically review the progress of the nuclear security culture action plan with appropriate managers,

those responsible for implementing the actions contained in the action plan, and other personnel. The frequency of these reviews will depend on the people involved. Such reviews should focus on implementation progress for the nuclear security culture action plan, any problems encountered, how the problems were resolved and any changes that will be made in the overall enhancement approach.

3.28. The nuclear security culture coordinator should assess the effectiveness of the steps taken, the results of each action and the associated costs, and should maintain a record of this information.

Revision

3.29. After the review of outcomes and any self-assessment results, the nuclear security culture coordinator should update the actions contained in the nuclear security culture action plan, add new actions to address strengths and weaknesses, address obstacles that have hindered the implementation of the actions, and update the resources needed for the completion of the actions, if this has changed.

3.30. These updates should be conducted regularly. They should be reviewed by the head of the organization, who offers feedback on, and ultimately approval of, the revised nuclear security culture action plan (see Annex V for a sample action plan and related instructions).

NUCLEAR SECURITY EDUCATION AND TRAINING

3.31. As stated in para. 2.14, a programme for the enhancement of nuclear security culture has three major objectives:

(a) Continuously improve the effectiveness of the nuclear security regime;
(b) Emphasize the importance of taking personal responsibility for nuclear security;
(c) Promote, establish and sustain the attitudes and behaviour that support effective nuclear security and personal responsibility for nuclear security.

3.32. To achieve these objectives, it is necessary to (a) instil in personnel the belief that the threat to nuclear and other radioactive material and associated facilities and activities is credible, (b) build an understanding of the consequences of ineffective nuclear security and its impact on the personnel themselves, and (c) encourage personnel to take concrete steps to enhance nuclear security. This may be accomplished through formal nuclear security education and training and

through awareness campaigns and promotional products. Educational institutions that offer nuclear security degrees or have related programmes should include in their curricula material on nuclear security culture and its importance.

3.33. All personnel involved in nuclear security should receive some level of nuclear security culture education, as discussed in paras 3.34–3.42.

3.34. For personnel working at the competent authority, this education may include workshops on the impact of the human element on nuclear security and suggestions for incorporating concepts of nuclear security culture into the legislative and regulatory framework and inspection regime.

3.35. For the nuclear security culture enhancement group, introductory education and training may support a common understanding that includes concepts and principles. In addition, nuclear security culture enhancement group members may undertake the same education and training provided to nuclear security culture coordinators or managers.

3.36. For nuclear security culture coordinators, initial education and training may include (a) an overview of nuclear security and the threats to facilities and activities from outsiders, insiders or both and (b) the potential consequences of theft of nuclear and other radioactive material and sabotage of associated facilities and activities. The training may also address the following: the regulatory basis of the nuclear security culture, the nuclear security culture model as described in Ref. [6], the effect of the human factor on nuclear security, self-assessment of nuclear security culture [7], effective communication, motivation techniques, and methods for change management and conflict resolution. The nuclear security culture coordinators should receive refresher training on a periodic basis.

3.37. Important information on nuclear security may be provided to all personnel during new employee training and may include an overview of credible threats. This information can be supplemented with training in the nuclear security system and how personnel can support the system's effectiveness. For example, personnel can support the system's effectiveness by protecting access badges or passes, following nuclear security procedures and reporting suspicious activity. This type of education and training should be periodically reiterated during annual refresher training.

3.38. Personnel directly supporting nuclear security, such as guard or response forces and nuclear material accounting and control personnel, should also be provided with in-depth education on credible threats, as appropriate, and on the

importance of nuclear security to counter the threats. Subsequent training sessions may address the reasoning behind nuclear security requirements and explain the objectives of the organization's nuclear security systems. Education and training for these personnel should be updated and provided immediately after new information about the threat is available and should be periodically reiterated as refresher training.

3.39. The nuclear security culture coordinator should also ensure that additional education and training is provided to scientific and technical personnel on credible threats; the importance of nuclear security; the consequences of ineffective nuclear security; and personal responsibility for nuclear security, including the importance of protecting nuclear security information. These personnel may also be given the opportunity to discuss the reasoning behind the requirements so that they recognize the importance of their contribution to nuclear security. This type of information may be included as an introductory module to technical training courses, as appropriate.

3.40. Managers can be important nuclear security role models and have a significant effect on the level of nuclear security culture within an organization. For example, if other personnel observe management complying with all access control procedures and requirements, they will internalize the importance of following those procedures. Education and training for managers are tools that improve management skills specific to enhancing nuclear security and nuclear security culture. Managers should complete all required education and training and continue to seek new opportunities to improve their management skills. For example, managers may take training that addresses effective communication and motivation of personnel.

3.41. Education and training sessions for managers may include an overview of nuclear security and the threats to facilities and activities from outsiders, insiders or both, as well as the potential consequences of theft of nuclear and other radioactive material and sabotage of associated facilities and activities. In addition, education may include the risk informed approach to nuclear security, the importance of the human factor and its impact on nuclear security, the nuclear security culture model discussed in Ref. [6], and self-assessment of nuclear security culture [7]. Managers may also be trained in elements of the response strategy that apply to their areas of responsibility. In addition, education and training may include information on how management could improve nuclear security culture and nuclear security through good communication, timely feedback, motivation of personnel, observation of personnel performance and nuclear security practices, as well as by allocating appropriate resources for nuclear security.

3.42. The education and training activities listed above may be provided at an organization, at a central training centre or at a combination of venues. The nuclear security culture enhancement group may review the State's education and training infrastructure to determine how to sustainably implement such activities.[5]

PROMOTIONAL PRODUCTS AND TRAINING AIDS

3.43. Promotional products and training aids reinforce attitudes and behaviour that enhance nuclear security. These products and training aids could take different forms, such as contests, posters, handouts and newsletters.

3.44. Contests might help remind personnel of the importance of nuclear security and can reach a great number of personnel. For example, a contest could focus on developing a nuclear security culture poster, logo or slogan. If the reward for winning the contest is associated with nuclear security (e.g. stationery stamped with the winning slogan), the reward serves as a long term reminder of the importance of nuclear security.

3.45. Posters may be developed by one central organization for distribution to all organizations or by nuclear security culture coordinators specifically for their own organizations. Poster campaigns may include motivational content to reinforce specific positive behaviour or to counteract negative trends discovered during self-assessments of nuclear security culture or through other methods (e.g. informal feedback from personnel). Posters may be displayed at central workplace locations, visually reminding personnel of the importance of nuclear security. The posters should be replaced on a regular basis so that personnel continue to notice them.

3.46. Handouts are any items that can be given to personnel to remind them of nuclear security. For example, handouts can include a calendar with a different nuclear security message for each month of the year. Each time personnel look at or use this item, they are reminded to think about nuclear security. Additional examples of handouts include pens, notepads and other stationery items with a nuclear security logo or message on them.

3.47. Newsletters with information on nuclear security may be regularly issued and may include content intended to appeal to a large audience. In addition to including information about nuclear security, newsletters might contain news

[5] Nuclear security support centres, where available, could also perform this task.

about the organization, a question and answer section, interviews, contests and motivational quotations. Personnel may be encouraged to submit information for possible inclusion in future newsletters. If the organization already issues a more general newsletter, another option would be to regularly provide information on nuclear security and its importance for inclusion in the existing newsletter.

HUMAN RESOURCE ELEMENTS

3.48. Many organizations currently have programmes with the potential to influence nuclear security culture under human resources or other departments within the organization. These programmes may include a personnel suggestion programme, personnel recognition programme and personnel assistance programme. These programmes are discussed in paras 3.49–3.51.

Personnel suggestion programme

3.49. A personnel suggestion programme provides a vehicle for personnel to propose improvements to the nuclear security system or related separate measures, such as management practices, procedures and policies. This programme may offer recognition or other rewards to personnel who make such proposals, especially if they are acted on by the organization. Proposals relating to nuclear security could be given to the nuclear security culture coordinator, who would research, evaluate and reply to the individual who made the suggestion. The reply could respond to the suggestion and show appreciation for the personnel's desire to enhance nuclear security.

Personnel recognition programme

3.50. A recognition programme is designed to reinforce good nuclear security practices. However, managers should be aware that routine rewards do not replace hands-on coaching and supervision. The existing reward system should be evaluated for the impact it has on desired behaviour, such as teamwork, quality and ethics, to make sure that it aligns with the desired nuclear security culture. For example, it would not enhance nuclear security culture to implement a reward system that encourages productivity above nuclear security. A recognition system might include certificates of appreciation or letters of recognition issued by the manager or photos periodically posted on a central bulletin board recognizing positive personnel contributions to nuclear security.

Personnel assistance programme

3.51. Outside stressors (e.g. divorce, death or illness in the family, financial problems) might affect personnel performance and emotional stability. A personnel assistance programme can help alleviate these outside stressors. If these stress factors are not addressed, they could lead to malicious behaviour in the workplace. A personnel assistance programme can help by providing services such as psychological counselling, care for elders, monetary loans, childcare and addiction treatment.

NUCLEAR SECURITY CULTURE CODE OF CONDUCT

3.52. One way to enhance staff morale and the workplace environment is to remind personnel of the importance of their duties. The nuclear security culture enhancement group may develop a model nuclear security culture code of conduct, which can be modified, as appropriate, and distributed to all personnel to remind them of their share of responsibility for nuclear security, as discussed in para. 2.36.

3.53. A nuclear security culture code of conduct may be issued by the organization to all personnel as a document for signature, confirming that personnel understand their responsibilities. This nuclear security culture code of conduct may be developed and issued by the nuclear security culture coordinator, as discussed in para. 2.63. A pocket version could help remind personnel of their responsibilities and the importance of nuclear security. The signed version should be kept in personnel files. A sample nuclear security culture code of conduct is provided in Annex IV.

LESSONS LEARNED PROGRAMME

3.54. States may have a programme that defines the types of nuclear security event that the operator of a facility or activity reports to the competent authority. The competent authority reviews the nuclear security events that have been reported to determine trends and provide lessons learned in an appropriate form to all relevant organizations.

CONTINUOUS IMPROVEMENT OF NUCLEAR SECURITY

3.55. Promoting the importance of nuclear security and enhancing nuclear security culture is a continuous activity.

3.56. There might be a need for regulatory requirements to facilitate the implementation of a nuclear security culture enhancement programme in organizations. The regulation may allow for the programme to be maintained over the long term.

3.57. The programme may also use lessons learned from enhancing nuclear safety culture and may consider existing infrastructure to promote synergy between nuclear safety and nuclear security.

3.58. Education of all stakeholders on existing threats, the importance of nuclear security to counter those threats and the personal consequences of ineffective nuclear security is vital to receiving resources and support. When those who can provide the resources (e.g. competent authorities, the head of the organization, managers) understand why it is important to do so, they might be more likely to give such support (for additional information about education and training, see paras 3.31–3.42).

3.59. The active involvement of all organizations with nuclear security responsibilities within the State promotes a sense of ownership and is crucial to the effectiveness and sustainability of the nuclear security culture enhancement policy. A coordinating body, such as the recommended nuclear security culture enhancement group, if created, can allow for close cooperation between nuclear security stakeholders. This interaction can reinforce specific attitudes and behaviour supporting the importance of nuclear security.

3.60. Finally, each organization's programme for the enhancement of nuclear security culture may include processes to facilitate the reporting of nuclear security concerns and events and the subsequent review of the reported data to learn how to improve performance and mitigate potential threats.

REFERENCES

[1] INTERNATIONAL ATOMIC ENERGY AGENCY, Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5), IAEA Nuclear Security Series No. 13, IAEA, Vienna (2011).

[2] INTERNATIONAL ATOMIC ENERGY AGENCY, Nuclear Security Recommendations on Radioactive Material and Associated Facilities, IAEA Nuclear Security Series No. 14, IAEA, Vienna (2011).

[3] INTERNATIONAL ATOMIC ENERGY AGENCY, Nuclear Security Recommendations on Nuclear and Other Radioactive Material out of Regulatory Control, IAEA Nuclear Security Series No. 15, IAEA, Vienna (2011).

[4] INTERNATIONAL ATOMIC ENERGY AGENCY, Objective and Essential Elements of a State's Nuclear Security Regime, IAEA Nuclear Security Series No. 20, IAEA, Vienna (2013).

[5] Amendment to the Convention on the Physical Protection of Nuclear Material, INFCIRC/274/Rev.1/Mod.1, IAEA, Vienna (2016).

[6] INTERNATIONAL ATOMIC ENERGY AGENCY, Nuclear Security Culture, IAEA Nuclear Security Series No. 7, IAEA, Vienna (2008).

[7] INTERNATIONAL ATOMIC ENERGY AGENCY, Self-assessment of Nuclear Security Culture in Facilities and Activities, IAEA Nuclear Security Series No. 28-T, IAEA, Vienna (2017).

[8] INTERNATIONAL ATOMIC ENERGY AGENCY, Leadership and Management for Safety, IAEA Safety Standards Series No. GSR Part 2, IAEA, Vienna (2016).

[9] INTERNATIONAL ATOMIC ENERGY AGENCY, Safety Culture in Nuclear Installations: Guidance for Use in the Enhancement of Safety Culture, IAEA-TECDOC-1329, IAEA, Vienna (2002).

[10] INTERNATIONAL ATOMIC ENERGY AGENCY, Performing Safety Culture Self-assessments, Safety Reports Series No. 83, IAEA, Vienna (2016).

[11] INTERNATIONAL ATOMIC ENERGY AGENCY, Management of Continual Improvement for Facilities and Activities: A Structured Approach, IAEA-TECDOC-1491, IAEA, Vienna (2006).

[12] INTERNATIONAL ATOMIC ENERGY AGENCY, Safety Culture Practices for the Regulatory Body, IAEA-TECDOC-1895, IAEA, Vienna (2020).

[13] INTERNATIONAL ATOMIC ENERGY AGENCY, Regulatory Oversight of Safety Culture in Nuclear Installations, IAEA-TECDOC-1707, IAEA, Vienna (2013).

Annex I

EXAMPLES OF THE IMPACT OF NUCLEAR SECURITY CULTURE ON NUCLEAR SECURITY

I–1. This annex provides examples of how the attitudes and behaviour of personnel contribute to the overall effectiveness of nuclear security.

EXAMPLE 1: COMPUTER SECURITY

I–2. The head of security receives a telephone call from the information technology manager and is informed that remote terminals are to be installed in all material balance areas and hooked up to the facility's mainframe computer system. The remote terminals will be used to process sensitive inventory data. After reviewing the potential security implications, the head of security and the information technology manager agree that the remote terminals are to be configured as a physically separate, secure network, complete with appropriate data encryption and communication line protection.

I–3. If the information technology manager had not informed the head of security about the installation of the remote servers, it is possible that one or both of the following security vulnerabilities could have occurred:

(1) Sensitive information on the remote terminals could have been inadvertently introduced onto the mainframe. If the mainframe had not been adequately configured to protect sensitive nuclear security information, that information could have been accessed without authorization.
(2) The competent authority might have required accreditation of networks used to process sensitive inventory data. Not protecting these remote terminals appropriately could have resulted in the system not complying with accreditation requirements. This could have resulted in a temporary shutdown of the network until the system had been accredited, which could have significantly interrupted workflow.

I–4. Coordination between the head of security and the information technology manager exhibited the following characteristics of a strong nuclear security culture:

(a) Management systems are well developed and prioritize security:
    (i) Clear roles and responsibilities: The information technology manager recognized and understood the head of security's role in and responsibility for assessing vulnerabilities associated with making changes to the site network.
    (ii) Information security: The information technology manager worked with the head of security to ensure that sensitive information was not compromised.
    (iii) Change management: The information technology manager properly coordinated with the head of security before making any changes to ensure that there would be no negative impacts on nuclear security.
(b) Leadership behaviour fosters more effective nuclear security:
    (i) Decision making: The information technology manager exhibited strong decision making skills by deciding to coordinate with the security organization before installing the computer equipment and connecting it to the mainframe.
    (ii) Effective communications: Good communications between the head of security and the information technology manager prevented the introduction of vulnerabilities into the system.
(c) Personnel behaviour fosters more effective nuclear security:
    (i) Adherence to procedures: The information technology manager followed proper protocol by contacting departments that could be affected by the change, including the security department, before installing new equipment.
    (ii) Teamwork and cooperation: Despite working in different departments, the information technology manager and the head of security worked effectively together to ensure that the proposed change would not introduce security vulnerabilities.
    (iii) Vigilance: Both the head of security and the information technology manager recognized the potential for security vulnerabilities and took proactive steps to prevent them.

EXAMPLE 2: VISITOR ACCESS CONTROL

I–5. Visitor passes for access to a facility are issued when a visitor arrives and are returned when the visitor leaves. A log book is maintained to sign visitors in and out of the facility. Visitors are escorted at all times by personnel who receive annual training on their responsibilities as an escort. When escorting a visitor out of the facility, the escorting personnel note that the visitor pass reception area is

unattended. The escorting personnel ensure that the visitor is signed out in the visitor log book and that the pass is deposited in secure storage.

I–6. If the escorting personnel had not assumed the responsibility of ensuring that the visitor was signed out and the pass was properly secured, it is possible that one or more of the following nuclear security vulnerabilities could have occurred:

(1) If the pass had not been returned to secure storage, it could have been reused by an unauthorized person to gain entry into a secure area.
(2) If the pass had been removed from the facility, the pass could have been examined to obtain information on the methods used by the automatic access control system to determine validity and authenticity.
(3) If the visitor had not been signed out, he or she might have been considered missing in the case of an event, thereby putting rescue personnel in unnecessary danger by expending effort searching for the visitor within the facility.

I–7. The actions of the escorting personnel demonstrated the following characteristics of a strong nuclear security culture:

(a) Management systems are well developed and prioritize nuclear security:
    (i) Clear roles and responsibilities: The responsibilities of an escort were clearly defined by the operator of the facility.
    (ii) Training and qualification: Annual refresher training provided the personnel with a clear and current understanding of their responsibilities as escorts as well as the requirements for visitor access to the facility.
(b) Personnel behaviour fosters more effective nuclear security:
    (i) Professional conduct: The personnel took their escort responsibilities seriously and were willing to assume the duties of the person that normally staffs the visitor pass reception area.
    (ii) Adherence to procedures: The personnel ensured that all procedures relating to visitors were followed, including securing the visitor pass and signing out the visitor.
    (iii) Vigilance: The personnel observed that the visitor pass reception area was unattended and took action to ensure that all procedures regarding visitors and visitor passes were followed.

EXAMPLE 3: INFORMATION SECURITY

I–8. A facility operator occasionally holds meetings with vendors, personnel at other facilities and personnel at the competent authority, which involves either the facility personnel travelling to the meetings or the off-site personnel travelling to the facility. Owing to increasing costs of travel, the facility operator implements an initiative to conduct more meetings using teleconferencing. Two meeting rooms are equipped with teleconferencing equipment, which allows off-site personnel to participate in the meeting by telephone.

I–9. The facility operator develops the following procedures for teleconferencing:

(1) Meeting participants are reminded that teleconferencing is in use.
(2) All callers confirm how they connected to the call and give their location and environment.
(3) The head of the meeting affirms whether sensitive information can or cannot be discussed.
(4) The head of the meeting provides regular reminders that teleconferencing is in use and what type of information can or cannot be discussed.
(5) The head of the meeting mutes the telephone if sensitive information is discussed. Once the call is unmuted, the head of the meeting reminds participants of the information security arrangements for the meeting.

I–10. The manager communicates expectations regarding the handling of teleconferences and videoconferences by ensuring that (a) a copy of the procedures is posted in each meeting room with teleconferencing or videoconferencing capability and (b) a briefing on the procedures is provided before use of the teleconferencing and videoconferencing capability and is included in the annual security refresher training. Without these procedures, it is possible that some participants might inadvertently discuss sensitive information that is not permitted to be disclosed over the communication network.

I–11. The actions of the facility operator demonstrated the following characteristics of a strong nuclear security culture:

(a) Management systems are well developed and prioritize nuclear security:
    (i) Visible nuclear security policy: Posting the procedures in the meeting rooms provided a clear visual reminder to meeting participants.

(ii) Clear roles and responsibilities: The responsibilities of meeting participants and the head of the meeting were clearly defined by the operator of the facility or activity.
(iii) Training and qualification: Initial and annual refresher training provided personnel with a clear and current understanding of their responsibilities during teleconferences and videoconferences.

(b) Leadership behaviour fosters more effective nuclear security:
(i) Expectations: Facility managers clearly communicated their expectations regarding the handling of teleconferences and videoconferences.

EXAMPLE 4: NUCLEAR FACILITY SECURITY

I–12. Unionized nuclear security personnel of a nuclear facility are preparing to go on strike. The head of the facility informs the competent authority of an imminent strike of the facility nuclear security personnel. Presumably, not all nuclear security personnel will join the strike, but it might be impossible to avoid a shortage of nuclear security personnel.

I–13. The competent authority requests the head of the facility to take measures to make sure the facility is protected, even in the case of reduced availability of nuclear security personnel. The competent authority implements an action plan to ensure off-site responders can relocate to supplement nuclear security of the facility in cases of personnel shortages. The head of the facility also reacts to this potential vulnerability by developing an action plan that addresses future instances of reduced levels of nuclear security personnel, including agreements with operators of other facilities to use their trained and experienced nuclear security personnel as backup.

I–14. The actions of the competent authority and the head of the facility demonstrated the following characteristics of a strong nuclear security culture:

(a) Management systems are well developed and prioritize nuclear security:
(i) Work management: The head of the facility took steps to ensure that adequate resources would be available to maintain an appropriate level of nuclear security in the case of a strike.
(ii) Compensatory measures: The head of the facility developed a compensatory measure to ensure that adequate nuclear security would be maintained in the case of a strike; the competent authority developed

an action plan to use off-site responders to provide additional resources to the facility if needed.

(iii) Coordination with off-site organizations: The head of the facility coordinated with the competent authority to address the potential strike and worked with operators of other facilities to arrange for additional resources in the case of a strike.

EXAMPLE 5: NUCLEAR FACILITY SECURITY

I–15. While conducting an evaluation, facility managers note that an emergency exit door is occasionally propped open so that personnel can take smoke breaks and move equipment in or out of the building. Further review reveals that nuclear security personnel do not respond to the alarm from the propped door because they are aware that authorized personnel are working in the area and assume it is part of normal activity. The facility managers recognize that propping open the emergency exit door provides an opportunity for insiders to circumvent access controls and detection and provides outsiders with a direct, unimpeded access path into the vital area.

I–16. Facility managers take the following corrective actions:

(1) A procedure is developed requiring nuclear security personnel to investigate and document the cause of all unexpected alarms from the vital area, regardless of whether authorized personnel are working in the area. All nuclear security personnel who monitor the alarm system for the vital area are trained in their responsibilities under the new procedure.

(2) A procedure is developed for posting a guard at the emergency exit door during periods when the door is opened for non-emergency use (e.g. movement of equipment).

(3) A notice is placed at the emergency exit door to contact security before opening during non-emergency situations.

(4) Facility or activity personnel are immediately briefed on the nuclear safety and nuclear security implications of propping open doors into the vital area without posting guards and on the procedure for non-emergency use of the emergency exit door. The briefing is incorporated into an annual nuclear security refresher briefing provided to all personnel.

During subsequent evaluations, no instances of misuse of the emergency exit door are noted.

I–17. The actions of the facility manager and personnel demonstrated the following characteristics of a strong nuclear security culture:

(a) Management systems are well developed and prioritize nuclear security:
    (i) Visible nuclear security policy: Posting notices at the vital area emergency exit doors clearly conveyed the nuclear security policy for non-emergency use of the doors.
    (ii) Clear roles and responsibilities: The responsibilities for non-emergency use of the emergency exit door were clearly defined by the facility operator in the new procedures.
    (iii) Training and qualification: Initial and annual refresher training provided personnel with a clear and current understanding of the nuclear security policy for non-emergency use of the emergency exit door.
    (iv) Operations and maintenance: The facility operator developed an effective compensatory measure (posting of guards) for non-emergency use of the emergency exit door.
    (v) Self-assessments: The facility's self-assessment programme was capable of identifying issues that needed to be corrected and eliminating the identified vulnerabilities.
(b) Leadership behaviour fosters more effective nuclear security:
    (i) Expectations: By implementing new procedures and directing training and briefings on the new procedures, facility managers clearly communicated their expectations to personnel regarding use of the emergency exit door.
    (ii) Effective communications: Facility managers effectively communicated requirements through briefings and postings.
(c) Personnel behaviour fosters more effective nuclear security:
    (i) Adherence to procedures: Subsequent evaluations showed that personnel were following procedures established for use of the emergency exit door.

EXAMPLE 6: TRANSPORT SECURITY

I–18. Shipping department personnel at a facility notice that one of the approved transport carriers has changed how it handles the facility's most sensitive shipments. It is clear to the shipping department personnel that the new method

of handling the shipment is less secure than the original method. Following the nuclear security procedure in effect means these items will continue to be consigned to the shipper but not handled in an appropriate manner. Since shipping department personnel understand not just that the material must be shipped through the approved carrier but also the reason for the shipping method, they alert nuclear security management. Nuclear security management removes the carrier from the approved list until it corrects the way it handles the shipments.

I–19. The actions of the personnel demonstrated the following characteristics of a strong nuclear security culture:

(a) Management systems are well developed and prioritize nuclear security:
    (i) Clear roles and responsibilities: Shipping department personnel were well aware of their responsibilities regarding sensitive shipments.
    (ii) Training and qualification: Shipping department personnel were trained and qualified to recognize that the new method of handling shipments provided inadequate nuclear security.
(b) Leadership behaviour fosters more effective nuclear security:
    (i) Decision making: Nuclear security management reacted quickly to remove the shipper from the approved list until the method of handling shipments was corrected.
    (ii) Involvement of personnel: Nuclear security management listened to the concerns voiced by the shipping department personnel and took action to correct the problem.
(c) Personnel behaviour fosters more effective nuclear security:
    (i) Professional conduct: The shipping department personnel went beyond merely following procedures and ensured the continued nuclear security of the sensitive items.
    (ii) Personal accountability: The shipping department personnel recognized their own responsibility to ensure nuclear security and to resolve issues when they arise.
    (iii) Vigilance: Shipping department personnel noticed and questioned the change in the shipper’s method for handling shipments.

Annex II

NUCLEAR SECURITY CULTURE INDICATORS AND EXAMPLE ACTIVITIES

II–1. This annex provides tables of nuclear security culture indicators with associated activities that can be undertaken to enhance specific characteristics of an effective nuclear security culture. These characteristics are described in Ref. [II–1] and are reproduced here in Fig. II–1.

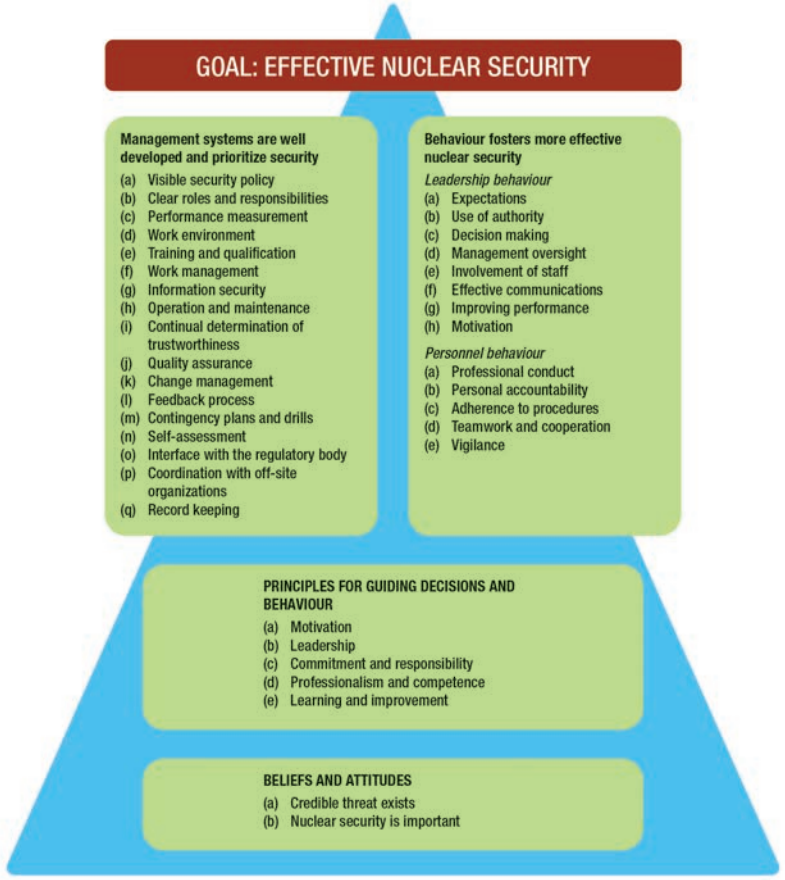

FIG. II–1. IAEA model of nuclear security culture [II–1].

II–2. These indicators and associated activities may be modified to address the specifics of a facility, activity or competent authority, and additional indicators and activities can be added. The head of the organization, other appropriate managers and the nuclear security culture coordinator can initially review the list in this annex to see if there are any immediate activities they would like to implement to enhance the nuclear security culture. After a self-assessment is conducted, as suggested in Ref. [II–2], this list may again be reviewed for potential activities that build on and optimize the identified strengths to further enhance nuclear security and the nuclear security culture. Many of the indicators are similar in nature; therefore, it might be helpful to peruse an entire section of sample activities to gain a fuller picture of what can be done to enhance a certain management system, leadership behaviour or personnel behaviour. The activities selected for implementation would be included in the nuclear security culture coordinator's action plan (see Annex V for a sample action plan).

II–3. The suggested activities in this annex identify an entity that would be responsible for conducting the activity; however, this entity might be different for different facilities and activities. It is the nuclear security culture coordinator's responsibility to determine who will assist in implementing each of the efforts included in the action plan. It is also the nuclear security culture coordinator's role to facilitate and monitor progress on each item of the action plan.

II–4. Many of the activities are to establish nuclear security measures. It is not the purpose of this annex to provide details on how to establish each of these measures. States can seek technical assistance from the IAEA and other international partners and look to international good practices when establishing the details of these elements.

II–5. The following tables may be used as a toolbox. Not every characteristic or indicator needs to or can be addressed at once. As addressed in Ref. [II–2], self-assessment can focus on a subset of indicators, as can the action plan developed by the nuclear security culture coordinator.

MANAGEMENT SYSTEMS

II–6. Management systems are the framework of processes and procedures used to ensure that a facility or activity operator can fulfil all tasks necessary to achieve the facility or activity's nuclear security objectives through a process of continual improvement. These management systems support security functions to define expectations, implement and maintain processes, measure progress,

assess compliance, improve performance on the basis of experience, and manage change. The management systems set out in Ref. [II–1] are included below.

Visible security policy

II–7. Each stakeholder will have a policy document that indicates its commitment to nuclear security and requires personnel to adhere to the expectations set out in the policy. These expectations include protecting sensitive materials and information, acknowledging security concerns and threats, being vigilant in carrying out nuclear security responsibilities, and reporting any unusual activity (see Table II–1).

Clear roles and responsibilities

II–8. All personnel have a responsibility for nuclear security within their own area of activity. Personnel need a clear understanding of who is responsible for what in order to achieve effective nuclear security. Stakeholders need to review and update documented roles and responsibilities for each position when change to the organizational structure is being planned and implemented (see Table II–2).

Performance measurement

II–9. Nuclear security performance measures assist in establishing management expectations for personnel (see Table II–3).

Work environment

II–10. The physical and psychological work environment has a large impact on how personnel comply with nuclear security requirements and undertake their roles and responsibilities. Good standards in housekeeping generally indicate the presence of interested managers and motivated personnel who take pride in their environment (see Table II–4).

Training and qualification

II–11. Personnel need to have the skills and knowledge required to perform their nuclear security duties to the desired standards (see Table II–5).

Work management

II–12. All work is suitably planned and coordinated to prevent compromises of nuclear security (see Table II–6).

Information security

II–13. Controlling access to sensitive information is a vital part of an effective nuclear security system (see Table II–7).

Operation and maintenance

II–14. The indicators included in this section cover the technical equipment employed in the nuclear security system (e.g. material accounting and control, physical protection, and transport security equipment), as well as the broader facility or activity's operations and maintenance (see Table II–8).

Determination of trustworthiness

II–15. Reference [II–3] provides reasoning for implementing a trustworthiness programme. These types of determination are intended to identify possible insider motivation or behaviour. Identifying potential motivations and abnormal behaviour early allows peers, managers and the nuclear security culture coordinator to encourage personnel to seek assistance and get the help they need (e.g. see para. 3.51 on personnel assistance programmes) before any malicious behaviour is exhibited. Trustworthiness programmes can only be implemented in accordance with national laws.

II–16. Some States have had success implementing post-employment programmes that allow the operator of the facility or activity to keep in touch with personnel who have held critical positions in the past (e.g. retirees, temporary personnel). These programmes include having certain managers of the facility or activity continue to interact with these personnel to solicit their expertise and continue to value their experience and dedication to the facility or activity. It is also a way to remind past personnel that they might still have unique knowledge that needs to be protected and to continue to provide them with the support to do so (see Table II–9).

Quality assurance

II–17. Standard quality assurance and control practices are to be applied to nuclear security. For example, the preparation, issue and updating of procedures will be subject to quality control, and the responsibilities for review will be clear. An indicator of a strong nuclear security culture would be that the personnel who have to use the procedures are involved in their review (see Table II–10).

Change management

II–18. Changes in equipment, procedures, organizational structures, and roles and responsibilities can have an impact on the effectiveness of nuclear security. Therefore, each stakeholder will have an effective process in place to understand, plan, implement and reinforce change as it applies to nuclear security (see Table II–11).

Feedback process

II–19. A systematic in-depth analysis of events is necessary if lessons are to be learned and the root causes identified. Root cause analysis requires that both the direct and indirect causes of events be identified. Experience has shown that human factors play a large role in many nuclear security events. Indicators of a strong nuclear security culture are that the stakeholder trains personnel to conduct systematic analyses of events and that lessons learned are disseminated as appropriate (see Table II–12).

Contingency plans and drills (exercises)

II–20. Effective nuclear security systems are in a continuous state of readiness to address security events. Important elements are the contingency plan that covers responses to unauthorized acts and the exercises that are conducted to practice and assess the contingency plan (see Table II–13).

Self-assessment

II–21. This section covers a system of self-assessment that includes a wide range of nuclear security assessment programmes, root cause analyses, performance indicators, lessons learned and corrective action tracking programmes that can be used for nuclear security. Indicators listed in Ref. [II–2] are included here to support nuclear security culture self-assessment (see Table II–14).

Interface with the regulatory body (and law enforcement bodies)

II–22. This section focuses specifically on the facility or activity operator's interaction with the competent authority appointed by the State to perform nuclear security oversight (see Table II–15).

Coordination with off-site organizations

II–23. Interaction with off-site organizations promotes learning from the experience of others and formalizes the support required from off-site organizations that help to support nuclear security (see Table II–16).

Record keeping

II–24. Record keeping is an essential characteristic of a nuclear security regime and is closely linked to the quality assurance function, as it ensures that nuclear security documentation is maintained and kept current (see Table II–17).

Text cont. on p. 122.

TABLE II–1. NUCLEAR SECURITY CULTURE INDICATORS: VISIBLE SECURITY POLICY

Indicator	Activity
A nuclear security policy is established for the organization.	*Manager:* — Develops a nuclear security policy that forms the foundation of the management systems described in Ref. [II–1]. This policy includes the following: • A declaration of commitment to quality of performance in all nuclear security activities; • A declaration that nuclear security has a high priority; • A process for managers to resolve any conflicts between safety, security, nuclear material accounting and control, and operations, taking into account the overall impact of risk to nuclear and other radioactive material, associated facilities and associated activities.
A nuclear security policy is posted in the facilities.	*Nuclear security culture coordinator:* — Posts non-sensitive sections of the security policy at appropriate locations so that all personnel and visitors can become familiar with policy.
The nuclear security policy is familiar to all personnel.	*Manager or nuclear security culture coordinator:* — Implements an awareness campaign to enhance knowledge of the policy; for example, managers can send the policy to all personnel through email, discuss the policy in meetings and make an announcement of how personnel can obtain a copy of the policy. *Personnel:* — Read and comply with the security policy.

TABLE II–1. NUCLEAR SECURITY CULTURE INDICATORS: VISIBLE SECURITY POLICY (cont.)

Indicator	Activity
The security function has a respected status.	*Nuclear security culture coordinator:* — Implements an awareness campaign to educate personnel about the importance of security personnel. This education could remind personnel about (a) the potential consequences to personnel, their families, their facility or activity, their State and the environment if material gets out of regulatory control and (b) how one event can threaten the stability of the entire nuclear industry. — Hosts meetings at which information on scientific or medical projects the facility or activity is pursuing is shared with security personnel so they gain a better appreciation of the technical efforts of other personnel. — Educates security personnel on the importance of establishing trust and rapport with other personnel by explaining (a) why security processes are done a certain way, (b) how security processes benefit personnel and the facility or activity, and (c) how not addressing security issues in a timely manner can create larger problems. *Security personnel:* — Create a more positive perception of security by interacting with other personnel on a regular basis (instead of only when there is an event or problem) through the following: • Conducting walkthroughs of the facility to observe and talk to personnel about the importance of nuclear security and their role in protecting assets; • Hosting informal discussions of security policies, personnel's security concerns and recent events that have occurred locally or internationally; • Holding informal security get-togethers in an open area (e.g. cafeteria) at which security personnel can interact with other personnel and discuss aspects of security.

TABLE II–1. NUCLEAR SECURITY CULTURE INDICATORS: VISIBLE SECURITY POLICY (cont.)

Indicator	Activity
A personnel code of conduct exists which covers the needs of nuclear security.	*Manager and nuclear security culture coordinator:* — Develop a code of conduct, to use as a motivator, that demonstrates the importance of nuclear security and distribute it to all personnel (see Annex IV for a sample code of conduct). This code of conduct can be signed by personnel as a binding obligation to the facility or activity. The signed code of conduct is kept in the individual's personnel folder with a copy given to the individual.
Personnel are familiar with the code of conduct through ongoing training and awareness sessions.	*Nuclear security culture coordinator:* — Distributes the code of conduct on a handy reference sized document so that it is easily accessible and can be worn on a lanyard with access badges or easily carried in a pocket; — Posts the code of conduct on walls in communal work areas. *Manager:* — Reminds personnel of the contents of the code of conduct at meetings or during other discussions. *Personnel:* — Attend training; — Ask for clarification of the code of conduct, if necessary; — Sign the code of conduct; — Become familiar with the content of the code of conduct; — Conduct themselves in accordance with the code of conduct.

TABLE II–1. NUCLEAR SECURITY CULTURE INDICATORS: VISIBLE SECURITY POLICY (cont.)

Indicator	Activity
Security is a clearly recognized value in the organization, and management invests adequate resources in security arrangements.	*Manager:* — Evaluates requests for security budget against actual resources allocated and performs cost–risk analysis to evaluate if resources provided are adequate to achieve acceptable level of risk (while complying with regulatory requirements); — Performs walkthroughs on a regular basis (e.g. weekly) to have discussions with personnel regarding how they value nuclear security; — Actively solicits suggestions on how to improve nuclear security and gauges the level of priority for personnel through participation and interest in other nuclear security culture events, such as contests for poster ideas; — Mentions the importance of nuclear security in formal and informal gatherings (e.g. briefings, meetings, presentations); — Follows all procedures and requirements to provide strong role modelling to staff. On the basis of feedback received from personnel, managers may allocate resources and work with the nuclear security culture coordinator to modify existing, or include proposed, nuclear security culture related activities in the action plan. *Personnel:* — Provide managers with feedback on security; — Provide suggestions on how to improve nuclear security; — Participate in nuclear security culture events; — Actively engage in discussions on nuclear security.

TABLE II–1. NUCLEAR SECURITY CULTURE INDICATORS: VISIBLE SECURITY POLICY (cont.)

Indicator	Activity
Security policy is reviewed and updated regularly with participation from senior management.	*Manager:* — Identifies specific times when the nuclear security policy is reviewed and updated, as appropriate. These instances would include regular review on a periodic basis (e.g. annually) and when there is a change to (a) higher level documents (e.g. national level nuclear security requirements and guidance), (b) threat or (c) mission. All appropriate departments (i.e. security, operations, safety) are involved in the review and update of the nuclear securitypolicy. *Personnel:* — Familiarize themselves with the current security policy and make recommendations to update it, as appropriate.
Processes are in place to identify the mandatory requirements relating to security.	*Manager:* — Receives amendments to State or competent authority nuclear security documents as well as new requirements that are issued; — Reviews these documents to identify if the facility or activity's written procedures or measures are to be changed; — Makes the changes to the facility or activity's written procedures, has them approved by the appropriate manager and distributes them to appropriate personnel; — Works with training department representatives to train personnel in the new requirements. *Personnel:* — Make note of announcements of changes to written procedures; — Successfully complete training as required.

TABLE II–1. NUCLEAR SECURITY CULTURE INDICATORS: VISIBLE SECURITY POLICY (cont.)

Indicator	Activity
Personnel understand that adherence to the nuclear security policy is expected of them.	*Manager:* — Issues a code of conduct that requires adherence to the nuclear security policy, which personnel are required to sign; — Works with training department representatives to provide training to personnel on the nuclear security policy; — Includes a requirement to adhere to the security policy in performance evaluations, job descriptions and contracts; — Relays his or her expectation that all personnel will adhere to the nuclear security policy through the following: • Making statements on videotape that are included in personnel training; • Making statements in person at meetings; • Issuing formal memorandums; • Leading by example. *Personnel:* — Adhere to the security policy; — Appropriately protect information; — Are vigilant in reporting security events; — Successfully complete any required training on the nuclear security policy.

TABLE II–1. NUCLEAR SECURITY CULTURE INDICATORS: VISIBLE SECURITY POLICY (cont.)

Indicator	Activity
Management personnel are visibly interested in security and integrate it into their daily activities.	*Manager:* — Conducts walkthroughs and discusses security with personnel; — Questions personnel on their knowledge of the nuclear security system and encourages the sharing of ideas on how to improve security; — Encourages participation in the personnel suggestion programme and security awareness contests; — Issues awards relating to personnel security performance (e.g. letters of recognition); — Holds informal meetings to solicit input from personnel on nuclear security; — Assigns nuclear security work according to skill set of personnel. *Nuclear security culture coordinator:* — Posts nuclear security culture posters in offices and common areas, and encourages discussion. *Personnel:* — Provide feedback on security to managers; — Participate in nuclear security exercises; — Provide suggestions on how to improve nuclear security; — Participate in informal and formal discussions on nuclear security; — Ask questions about nuclear security messages to better understand intent.

TABLE II–1. NUCLEAR SECURITY CULTURE INDICATORS: VISIBLE SECURITY POLICY (cont.)

Indicator	Activity
Nuclear security policy is kept up to date.	*Manager:* — Designates a specific procedure for updating the nuclear security policy. — Identifies specific times when the security policy will be reviewed and updated, as appropriate. These instances would include a regular review on a periodic basis (e.g. annually) and when there is a change to (a) higher level documents (e.g. national level nuclear security requirements and guidance), (b) threat or (c) mission. — Checks that the policy is kept up to date. All affected departments (i.e. security, operations, safety) can be involved in the review and update of the security policy. *Personnel:* — Recommend updates to the security policy, as appropriate.
Regularly held management meetings at the facility or activity adequately cover significant security items.	*Manager:* — Keeps a placeholder for nuclear security to be included as a topic at all meetings and liaises with the nuclear security culture coordinator to determine if there is information of substance to be shared. *Personnel:* — Actively participate in these discussions, using this opportunity to request clarification of security requirements and suggest improvements.

TABLE II–1. NUCLEAR SECURITY CULTURE INDICATORS: VISIBLE SECURITY POLICY (cont.)

Indicator	Activity
Events relating to the threat environment and its potential impact on nuclear security and nuclear security policy are adequately reported to personnel.	*Manager and nuclear security culture coordinator:* — Educate all security personnel daily on information relating to the threat environment and the potential impact on nuclear security; — Educate other personnel on a regular basis (e.g. every six months) on unclassified information relating to the threat environment and its potential impact on nuclear security; — Institute a process whereby nuclear security training is updated when changes to the threat occur, to include how these changes impact the nuclear security system. *Manager:* — Provides immediate information through email, meetings and newsletters, and suggests what personnel might need to do differently to address the updated threat. Security personnel and others with key security responsibilities would receive more detailed and sensitive information than other personnel. *Personnel:* — Take note of the current threat environment; — Know the security procedures relating to the current threat level; — Follow those security procedures; — Report any abnormal events.

TABLE II–1. NUCLEAR SECURITY CULTURE INDICATORS: VISIBLE SECURITY POLICY (cont.)

Indicator	Activity
There is a well defined and widely known policy to encourage implementation of the nuclear security policy, with some professional rewards or recognition directly or indirectly associated with the achievement of its goals.	*Manager:* — Institutes professional rewards associated with nuclear security achievements, such as the following: • Letters of recognition; • Certificates of appreciation; • Formal awards; • Recognition in the performance evaluation process; • Pictures of 'security personnel of the month or quarter' displayed prominently in a common area. Note: It is important to structure any such award system so that it does not encourage undesirable behaviour (e.g. personnel not wanting to report security events to keep their record clean and increase their chance of an award). The same consideration applies to the structure of sanctions (e.g. a zero tolerance policy is likely to discourage the reporting of security events).
Personnel can cite examples that illustrate the meaning of the security policy statements.	*Nuclear security culture coordinator:* — Institutes a security training feedback process that requires each participant to write a brief paragraph summarizing a security policy statement and what it means to them a number of weeks after the training has been completed. *Personnel:* — Study the security policy and request any clarification necessary to understand its intent so they can put the meaning of the policy into their own words and explain how it influences their day to day functions.

TABLE II–1. NUCLEAR SECURITY CULTURE INDICATORS: VISIBLE SECURITY POLICY (cont.)

Indicator	Activity
Media based communication systems (e.g. intranet, newsletters) are used to disseminate the security policy to personnel.	*Nuclear security culture coordinator:* — Issues the nuclear security policy through the following means: • Management videos; • Facility newsletters; • A reference section on the security page of the facility or activity web site (that can be easily accessed by personnel and contain relevant security policies, procedures and general information).

TABLE II–2. NUCLEAR SECURITY CULTURE INDICATORS: CLEAR ROLES AND RESPONSIBILITIES

Indicator	Activity
The facility or activity has clearly defined and documented roles and responsibilities for all nuclear security positions.	*Manager and nuclear security culture coordinator:* — Document the roles, responsibilities and authorities of each position with specific responsibilities for nuclear security. *Personnel:* — Receive the appropriate documentation and are familiar with their roles and responsibilities.
Personnel understand their roles and responsibilities for nuclear security and are encouraged to seek clarification when necessary.	*Manager:* — Conducts walkthroughs and promotes an environment that encourages personnel to seek clarification by asking if they have questions; — Designates a peer who can act as an interlocutor and problem solver for personnel when they have questions but feel uncomfortable asking directly. *Nuclear security culture coordinator:* — Provides general information to all personnel (e.g. an intranet page answering frequently asked questions); — Discusses the roles and responsibilities of each individual as they relate to nuclear security and asks questions to ascertain whether they are understood. *Personnel:* — Review their nuclear security roles and responsibilities; — Clarify these roles and responsibilities by taking the opportunity to ask managers questions during walkthroughs; — Access web site information and use reference documents; — Interact with the security interlocutor when necessary.

TABLE II–2. NUCLEAR SECURITY CULTURE INDICATORS: CLEAR ROLES AND RESPONSIBILITIES (cont.)

Indicator	Activity
Roles and responsibilities are adequately explained to new personnel at initial briefings or training sessions.	*Manager and nuclear security culture coordinator:* — Review initial and general personnel training to ensure that appropriate information is included; — Decide when to update training materials to add appropriate information; — Hold a session with new personnel to make sure roles and responsibilities are clear and answer any outstanding questions. *Personnel:* — Ask questions at briefings and training sessions to ensure that they understand nuclear security roles and responsibilities.

TABLE II–2. NUCLEAR SECURITY CULTURE INDICATORS: CLEAR ROLES AND RESPONSIBILITIES (cont.)

Indicator	Activity
Responsibility for security is assigned to a senior member of the management team, but all personnel are aware that security is a shared responsibility across the whole facility or activity.	*Manager:* — Identifies a director or senior executive who is directly accountable for security of the facility or activity. All personnel are made aware that security is their responsibility via the following: — Initial training; — Continual security and technical training; — Discussions with the nuclear security culture coordinator and manager; — Bulletins, newsletters, computer alerts, posters and videos. *Personnel:* — Actively take responsibility for security through the following: • Protecting their access badges; • Questioning individuals not showing their access authorization; • Following security procedures; • Proposing enhancements to nuclear security; • Respectfully following directions of the guard or response force; • Reporting abnormal behaviour and events; • Encouraging their peers to do the same.

TABLE II–2. NUCLEAR SECURITY CULTURE INDICATORS: CLEAR ROLES AND RESPONSIBILITIES (cont.)

Indicator	Activity
All personnel understand potential threats and the nuclear security system well enough to accept their roles and responsibilities relating to nuclear security.	*Manager or nuclear security culture coordinator:* — Provide personnel with appropriate information on threats through the following means: • Initial education and training; • Continuous security and technical training; • Management briefings; • Bulletins and announcements of changes in threats as well as examples of real security events and trends. *Manager:* — Provides personnel with opportunities to discuss the credibility of these threats with security managers and other personnel. *Manager and nuclear security culture coordinator:* — Provide personnel with appropriate non-sensitive information on malicious capabilities, how the nuclear security system responds and how personnel respond in the case of an abnormal situation. *Personnel:* — Take part in all required training and management briefings, keep up to date on the threat level, actively discuss the credibility of threats and real security events, and know how to respond in an abnormal situation.
Security processes and procedures are clearly defined so that they are easy to understand, follow and evaluate.	*Manager and nuclear security culture coordinator:* — Review security processes and procedures for clarity and request feedback from personnel; — Update security processes and procedures, as necessary. *Personnel:* — Give feedback on how to make processes and procedures easier to understand.

TABLE II–2. NUCLEAR SECURITY CULTURE INDICATORS: CLEAR ROLES AND RESPONSIBILITIES (cont.)

Indicator	Activity
All personnel know why they are assigned security related functions, how these functions fit into the broader picture and what impact they might have on the facility or activity.	*Manager:* — Requires training for security related functions to provide the 'why' behind the security activities, processes, systems and procedures, and to explain how they fit into the overarching security strategy. *Personnel:* — Successfully complete the training and ask questions to better understand their function and the impact it has on the facility or activity.
Contractual documents clearly define contractors' roles and responsibilities relating to nuclear security.	*Manager:* — Requires the contracting department to include security requirements, including how to handle sensitive information, in the terms and conditions of the contract; — Requires that each contractor complete general training on security before starting the work under contract; — Requires that contractors be held responsible for their actions relating to nuclear security and understand that those actions will influence their ability to receive future work with the facility or activity; — Requires that a record be maintained if contractors do not follow security regulations (e.g. access control).
There is a clear understanding within the facility or activity of the security related levels of authority and lines of communication.	*Manager:* — Issues an organization chart identifying points of contact for security issues; — Makes this information easily accessible to personnel on the internal web site; — Establishes an interlocutor in each department who can be contacted with any questions regarding nuclear security authority and lines of communication without fear of reprisal.

TABLE II–2. NUCLEAR SECURITY CULTURE INDICATORS: CLEAR ROLES AND RESPONSIBILITIES (cont.)

Indicator	Activity
The overall responsibility of management for security is readily apparent.	*Manager:* — Distributes this information through an organization chart to all personnel; — Provides personnel with a list of important contacts in hard copy and makes an electronic copy easily accessible (e.g. on security section of facility or activity's internal web site); — Informs personnel where they can find this information during formal and informal gatherings such as briefings, meetings and presentations.
The threat (design basis threat) against which nuclear and other radioactive material and associated facilities and associated activities are to be protected is determined and well understood by all parties involved in designing, applying and evaluating the security measures.	*State or competent authority:* — Identifies stakeholders involved in determining the design basis threat and provides training for the group; — Holds meetings of stakeholders to present information on the design basis threat; — Provides appropriate information from the design basis threat to designers of new facilities and activities so the nuclear security system is built to meet the threats contained in the design basis threat. *Manager:* — Provides appropriate information from the design basis threat to designers of new facilities and activities so the nuclear security system is built to meet the threats contained in the design basis threat; — Provides appropriate training to counter the relevant threats contained in the design basis threat; — Provides appropriate information from the design basis threat to designers, operators and evaluators of the nuclear security system; — Educates personnel on the threat; — Takes into consideration details of the design basis threat in every stage of the facility or activity life cycle.

TABLE II–2. NUCLEAR SECURITY CULTURE INDICATORS: CLEAR ROLES AND RESPONSIBILITIES (cont.)

Indicator	Activity
Systems are in place to examine and make use of the synergies between safety and security.	*Manager:* — Establishes a coordinating body responsible for discussions on a regular basis (e.g. monthly) on how safety and security can complement each other; — Includes the requirement to consult with security and safety personnel in processes and procedures for input into projects. *Safety and security personnel:* — Actively seek to coordinate with one another, learn from the others' experience to enhance safety and security, and promote cooperation between the two disciplines to achieve synergy.

TABLE II–3. NUCLEAR SECURITY CULTURE INDICATORS: PERFORMANCE MEASUREMENT

Indicator	Activity
The operator of the facility or activity uses benchmarks and targets in order to understand, achieve and improve performance at all levels.	*Manager:* — Conducts a baseline analysis and creates performance goals to be met that enhance nuclear security. Note: It is important to structure any performance goal or award system so that it does not encourage undesirable behaviour (e.g. personnel not wanting to report security events to keep their record clean and increase their chance of achieving a performance goal or receiving an award). The same consideration applies to the structure of sanctions (e.g. a zero tolerance policy is like to discourage the reporting of security events).
Performance results compared with the targets are regularly communicated to personnel.	*Manager:* — Provides status updates on a regular basis (e.g. quarterly) in personnel meetings or in general email if not sensitive. *Personnel:* — Track performance results and ask managers what they can do to improve the results.
Action is taken when nuclear security performance does not fully match the goals.	*Manager:* — Develops and implements a documented process on the action to be taken when security performance goals are not met. This can include re-evaluating performance goals and preparing an action plan. — Records, investigates and analyses security events to determine if there is a systemic problem. *Personnel:* — Understand nuclear security goals and make recommendations on how to improve performance.

TABLE II–3. NUCLEAR SECURITY CULTURE INDICATORS: PERFORMANCE MEASUREMENT (cont.)

Indicator	Activity
Effective performance leading to better security is rewarded.	*Manager:* — Institutes professional rewards associated with nuclear security achievements, such as the following: • Letters of recognition; • Certificates of appreciation; • Formal awards; • Recognition in the performance evaluation process; • Pictures of 'security personnel of the month or quarter' displayed prominently in a common area. Note: It is important to structure any such award system so that it does not encourage undesirable behaviour (e.g. personnel not wanting to report security events to keep their record clean and increase their chance of an award). The same consideration applies to the structure of sanctions (e.g. a zero tolerance policy is like to discourage the reporting of security events).
Regulatory and independent assessments of security performance are discussed at management and other meetings.	*Manager:* — Invites responsible personnel to report on assessment on a regular basis (e.g. monthly) at appropriate meetings. *Personnel:* — Attend these meetings as appropriate to understand nuclear security performance and performance goals and assist with meeting those goals.

TABLE II–3. NUCLEAR SECURITY CULTURE INDICATORS: PERFORMANCE MEASUREMENT (cont.)

Indicator	Activity
The operator of the facility or activity actively and systematically monitors performance through multiple means (e.g. management walkthroughs, reporting of issues, indicators, trend analysis, benchmarking, industry experience reviews, self-assessments, performance assessments).	*Manager:* — Establishes reporting systems and grants responsibility for analysis to the appropriate individuals; — Implements management systems, such as exercising contingency plans and self-assessments, as identified in Ref. [II–1]; — Identifies and supports personnel to attend forums for exchange of good practices and industry experience reviews; — Conducts walkthroughs to observe personnel performance and effectiveness of the nuclear security system; — Records, investigates and analyses security events to determine if there are systemic problems. *Personnel:* — Report issues and make recommendations on how to improve performance; — Take part in self-assessments.

TABLE II–4. NUCLEAR SECURITY CULTURE INDICATORS: WORK ENVIRONMENT

Indicator	Activity
The work environment is conducive to high standards of performance (e.g. standards of housekeeping, timely provision of equipment and tools).	*Manager:* — Implements a process whereby all personnel request the equipment and tools required to perform their job effectively or confirms they have such equipment and tools; — Implements a housekeeping review programme to rate facilities and activities, and provides incentives for good housekeeping; — Conducts walkthroughs of work area to ensure standards of housekeeping are being met. *Personnel:* — Request any additional equipment and tools required to conduct their job effectively; — Keep work areas up to high standards of housekeeping; — Take pride in their work areas.
Personnel are consulted about the ergonomics and effectiveness of their work environment.	*Manager:* — Provides a process, with the appropriate resources, for personnel to request an ergonomics review of their workplace and have their workplace modified appropriately. *Personnel:* — Request an ergonomics review of their workplace and make sure their workplace is modified appropriately.
Texts of guides and procedures are user friendly and understandable to personnel.	*Manager:* — Involves personnel in reviewing guides and procedures to make sure personnel comprehend the documents and makes the documents readily available. *Personnel:* — Give feedback if guides and procedures are not user friendly and easy to understand and make recommendations on how to improve the documents.

TABLE II–4. NUCLEAR SECURITY CULTURE INDICATORS: WORK ENVIRONMENT (cont.)

Indicator	Activity
Top managers periodically visit staffed security posts. Special attention is paid to periods of reduced activity such as the back shift and weekends.	*Manager:* — Conducts walkthroughs to observe what security personnel are doing and show interest in the job being performed. Walkthroughs are conducted on a regular basis (e.g. weekly), in a random manner for all shifts to help to instil vigilance and a sense of the importance of the post. — Requires reviews and performance testing of procedures as part of the self-assessment programme.
Well established procedures exist for all significant security activities.	*Manager:* — Requires that security personnel map procedures to security activities to ensure that all significant security activities are covered. *Personnel:* — Advise managers if there is no procedure for a security activity or if the procedure needs to be updated.
Security procedures are not regarded as an excessive burden.	*Security personnel:* — Hold discussions with other personnel on a regular basis to make it clear why security procedures are in place and listen to personnel's advice on how to make the security procedures more effective. Any voiced complaints are reviewed and feedback is provided. *Personnel:* — Actively participate in discussions and make suggestions on how security procedures can be made more efficient.

TABLE II–4. NUCLEAR SECURITY CULTURE INDICATORS: WORK ENVIRONMENT (cont.)

Indicator	Activity
Feedback from personnel and contractors is requested and analysed.	*Manager:* — Establishes a formal process (e.g. annual performance review cycle) to request input from personnel on security concerns; — Analyses personnel input and is held accountable for reviewing the input and giving feedback; — Establishes a formal process that requires contractors to give feedback on a regular basis (e.g. annually or on completion of tasks) that is analysed by managers and used to make improvements. *Personnel:* — Actively provide their feedback on the work environment and how it can be improved.
The work climate supports teamwork and sharing of knowledge.	*Manager:* — Establishes teams and working groups with all levels of personnel to tackle special projects, such as how to improve a specific work process. The team writes up its findings and presents them to managers. — Establishes a mentoring programme to give junior colleagues more visibility and exposure to different skills and knowledge. — Holds meetings of personnel from various departments to share current activities and exchange good practices and solutions. *Personnel:* — Participate in special projects; — Act as mentors; — Share current activities as appropriate; — Exchange good practices; — Share successes in overcoming obstacles.

TABLE II–4. NUCLEAR SECURITY CULTURE INDICATORS: WORK ENVIRONMENT (cont.)

Indicator	Activity
There is a mechanism to monitor and control overtime to prevent adverse security implications.	*Manager:* — Assigns to an individual (or individuals) responsibility for monitoring overtime and putting controls in place that limit workers to international standards so as not to decrease their effectiveness on security responsibilities (e.g. limiting the number of double shifts that guard or response forces can work). *Personnel:* — Are aware of limitations on overtime and the number of shifts that can be worked and adhere to those limitations.
Procedures are regularly reviewed and updated on the basis of personnel input and performance testing results.	*Manager:* — Establishes a formal system that requests input from those personnel using the procedures on a regular basis; — Includes an input system as an element of the facility or activity's performance testing programme to incorporate results into the procedure revision process. *Personnel:* — Provide input on the efficacy and clarity of procedures; — Participate in performance testing and follow-on actions, as appropriate.

TABLE II–4. NUCLEAR SECURITY CULTURE INDICATORS: WORK ENVIRONMENT (cont.)

Indicator	Activity
Designers and operators of nuclear security systems ensure that security measures do not compromise safety features.	*Manager:* — Establishes a group of safety, security and operations personnel who discuss security, safety and operational activities on an ongoing basis to help de-escalate any issues in a timely manner and establish solutions agreed to by all experts; — Establishes requirement that all new designs include security and safety in the review process. *Personnel (as experience warrants):* — Participate in such discussions and reviews and recommend solutions when safety and security requirements conflict.

TABLE II–5. NUCLEAR SECURITY CULTURE INDICATORS: TRAINING AND QUALIFICATION

Indicator	Activity
A comprehensive nuclear security training programme exists, for which requirements and qualification standards are established and documented, and communicated to personnel.	*Manager:* — Uses the guidance in this publication as well as in other IAEA publications on nuclear security to ensure that comprehensive training programmes exist and are in line with international standards and good practices. Requirements and qualification standards are established and documented for each position and distributed to the associated personnel. *Personnel:* — Understand their training requirements and qualification standards, and seek training opportunities that fulfil those requirements and assist them with meeting qualification standards.
Participation in training is given high priority and is not disrupted by non-urgent activities.	*Manager:* — Encourages personnel to attend training and identifies backup personnel who can help conduct work while other personnel are out of the office for training. *Personnel:* — Consider training a top priority and successfully complete all required training.
Periodic evaluations of training programmes are conducted and revisions incorporated, as necessary.	*The facility or activity's training department:* — Has a process in place to receive feedback on instructors and course material after every training activity. This feedback will be evaluated, and course material will be revised on a periodic basis. *Personnel:* — Complete requested training evaluations and provide constructive comments for the training material to be revised accordingly.

TABLE II–5. NUCLEAR SECURITY CULTURE INDICATORS: TRAINING AND QUALIFICATION (cont.)

Indicator	Activity
Information about the status of personnel qualifications is easily accessible to those who need to know.	*Manager:* — Maintains records of personnel training and qualification activities so it can be easily determined if individual requirements have been met. *Personnel:* — Track their training requirements and keep a record of completed training.
Personnel do not perform work for which they lack the required skills and knowledge.	*Manager:* — Identifies the skills and knowledge required for nuclear security roles and responsibilities so he or she can match the right person to the right job. *Personnel:* — Request training and refresher training, as necessary, to best complete the work they are assigned.
Appropriate physical fitness criteria are established and monitored.	*Manager:* — Establishes appropriate fitness requirements help ensure that personnel can perform their required roles and responsibilities; — Works with personnel and training representatives to ensure that the affected personnel are tested against these fitness standards and that the results are maintained in their personnel files. *Personnel:* — Maintain the required fitness standards or report if there is a reason (e.g. medical issue) making them unable to do so.
Top managers periodically visit training sessions.	*Top management/personnel:* — Introduce themselves at the beginning of training sessions when possible and affirm that training is a priority at the facility or activity.

TABLE II–5. NUCLEAR SECURITY CULTURE INDICATORS: TRAINING AND QUALIFICATION (cont.)

Indicator	Activity
Basic security awareness training instructs personnel on proper workplace security as well as requirements for reporting security violations.	*Manager:* — Ensures that training modules emphasize the importance of each individual taking responsibility for security, which includes reporting their errors as well as any clear security infractions, suspicious activity or abnormal behaviour. *Personnel:* — Complete all training requirements and know how to report a security violation.
Systems are in place to ensure that procedures and practices learned in training are applied in practice.	*Manager:* — Observes personnel conducting work post-training; — Establishes a process to have personnel note how they will incorporate knowledge and skills gained from training into their daily work and follows up with personnel after training (e.g. six months post-training); — Requires reviews and performance testing of practices as part of the self-assessment programme. *Training department:* — Conducts follow-up testing of personnel and refresher training. *Personnel:* — Implement procedures and practices in accordance with training received.
Leadership skills and best practices in security are included in training programmes for managers.	*Training department:* — Actively seeks out good practices and incorporates them into training. *Manager:* — Successfully completes security training; — Offers personnel the opportunity to take training that provides leadership skills. *Personnel:* — Pursue opportunities to participate in leadership training.

TABLE II–5. NUCLEAR SECURITY CULTURE INDICATORS: TRAINING AND QUALIFICATION (cont.)

Indicator	Activity
Management is committed to providing adequate resources for effective training.	*Manager:* — Checks the number of personnel trained per year against allocated budget and works with the training department to determine if the number is adequate to maintain all necessary security skills and knowledge.
Facility or activity values and practices require security and non-security personnel to participate in refresher training to improve security related knowledge and skills.	*Training department:* — Incorporates security related information into training for all personnel at every level. *Personnel:* — Successfully complete the requirement for refresher security training.
Beliefs and attitudes are considered in security training.	*Training department:* — Analyses participant feedback from security training and modifies training materials to better address certain beliefs and attitudes.
Personnel recognize that learning is a continuous and ongoing process throughout the facility or activity.	*Manager:* — Develops training plans for different levels of personnel to show that the operator of the facility or activity supports continual training. *Personnel:* — Pursue training as one way to continually improve skills and knowledge and to provide suggestions to managers on what training is to be offered.

TABLE II–5. NUCLEAR SECURITY CULTURE INDICATORS: TRAINING AND QUALIFICATION (cont.)

Indicator	Activity
Management is committed to participating in nuclear security courses.	*Manager:* — Identifies at least one nuclear security course to attend each year and presents information from this course to personnel after attending. *Personnel:* — Demonstrate an interest in the nuclear security training that manager has completed or plans to complete.
Training materials include good practices and lessons from security breaches.	*Nuclear security culture coordinator, with the training department:* — Requests personnel to provide them with information on security breaches that can be then researched and turned into case studies using non-sensitive information; — Conducts independent searches for information on security breaches; — Works with partner organizations to share non-sensitive information on security breaches that can be used for case studies; — Works with security personnel on how to present lessons learned and good practices that can be applied to the case studies. *Personnel:* — Provide the nuclear security culture coordinator with open source information on security breaches that they learn about in good practice exchanges, training sessions, international conferences and newsletters.

TABLE II–5. NUCLEAR SECURITY CULTURE INDICATORS: TRAINING AND QUALIFICATION (cont.)

Indicator	Activity
Personnel can give feedback on security training.	*Manager:* — Establishes a requirement that each security training course include a formal evaluation by each participant, which is welcomed by managers and the training department and used openly to improve future training. *Training department:* — Establishes a feedback system so former training participants can see how their feedback was incorporated into revised training materials. *Personnel:* — Complete all evaluation forms and provide constructive criticism.
Training programmes at the facility or activity address security conscious behaviour as a key element of professionalism.	*Manager and the training department:* — Include characteristics of personnel behaviour from Ref. [II–1] into training to promote a sense of responsibility in personnel regarding their role in supporting nuclear security; — Include the importance of the role of personnel in enhancing nuclear security for building on their sense of pride. *Personnel:* — Are proud of their work and conduct themselves professionally, adhering to all security procedures and reporting abnormal events.
Security personnel are encouraged to share good practices with other facilities or activities.	*Manager:* — Approves security personnel's participation in good practice exchanges with various organizations; — Approves non-sensitive information for security personnel to share at good practice exchanges. *Personnel:* — Pursue opportunities to participate in good practice exchanges to share and receive information that can be used to improve security practices within their facility or activity.

TABLE II–5. NUCLEAR SECURITY CULTURE INDICATORS: TRAINING AND QUALIFICATION (cont.)

Indicator	Activity
The absentee rate during training sessions on nuclear security is low.	*Manager:* — Visits training sessions to signal the importance of the session and conveys the expectation that personnel actually attend required training sessions. — Confirms that attendance rate is high and, if not, determines causes. — Requires attendance records to be maintained and personally discusses reasons for absence with personnel who do not attend. — Works with training and security department representatives to make nuclear security training interesting, interactive and dynamic. For example, guest speakers can be brought in, short tours and demonstrations can be given, and videos can be shown. *Personnel:* — Attend all required training unless there is a serious impediment. If unable to attend, they arrange attendance at an alternative time with the training department as soon as possible.
Arrangements are in place to enable personnel to avoid gaps in their training if they have to miss relevant modules.	*Manager and the training department:* — Schedule implementation of the same module at various times of the year to allow attendance at alternative sessions; — Implement computer based or home based training that participants can complete on a flexible timetable.

TABLE II–6. NUCLEAR SECURITY CULTURE INDICATORS: WORK MANAGEMENT

Indicator	Activity
Work is planned to ensure that the integrity of the nuclear security system is maintained effectively at all times.	*Manager:* — Requires that a procedure for compensatory measures be developed and implemented before any maintenance work that might compromise the nuclear security system is scheduled; — Requires a procedure that informs all appropriate personnel of the expected impact of the maintenance work on their normal duties (e.g. the central alarm station operator might receive more alarms than usual and will need to assess each one instead of dismissing them as innocent owing to the maintenance work); — Requires that administrative procedures, such as the two-person rule, be implemented as necessary; — Conducts walkthroughs randomly during each shift to personally observe the effectiveness of the nuclear security system. *Personnel:* — Inform manager or other appropriate personnel when nuclear security system effectiveness can be improved and make specific recommendations on how to improve its effectiveness; — Do not perform work that will negatively impact the effectiveness of the nuclear security system unless appropriate compensatory measures are in place.
Contingency plans are established to address foreseeable events.	*Manager:* — Establishes contingency plans to maintain effective nuclear security in cases of planned loss of power, performance testing and maintenance outages. *Personnel:* — Are familiar with contingency plans and when they may be implemented.

TABLE II–6. NUCLEAR SECURITY CULTURE INDICATORS: WORK MANAGEMENT (cont.)

Indicator	Activity
Personnel follow the established plans or seek proper approval to deviate from planned duties and activities.	*Manager:* — Stresses the importance of following procedures through appropriate means such as emails, meetings, discussions and poster campaigns; — Encourages personnel to indicate when changing an established plan could be beneficial and when procedures need to be modified; — Establishes a system through which personnel are encouraged to identify when plans, procedures and policies require changes; — Implements a system through which work can be stopped by anyone if security requirements cannot be met or work puts material at risk. *Personnel:* — Are knowledgeable about the approval process required before deviating from planned duties or activities; — Receive the required approvals before deviating from planned duties or activities.
Work is planned in sufficient detail to allow personnel to work effectively and efficiently (e.g. resources are matched to demands, spare parts and tools are available when needed).	*Manager:* — Establishes a process for personnel to review the resources needed for a particular job and documents that they are in place before the work is conducted. *Personnel:* — Review the resources required for a particular job (e.g. radiation protection for the guard or response force while doing exercises) and do not conduct the work if those resources are not in place; — Know whom to contact to receive the required resources.

TABLE II–6. NUCLEAR SECURITY CULTURE INDICATORS: WORK MANAGEMENT (cont.)

Indicator	Activity
The interfaces between work groups are considered and addressed during planning.	*Manager:* — Encourages communication between different work groups (especially nuclear material accounting and control and safety) and establishes a formal process to address interfaces before work is conducted. *Personnel:* — Understand how objectives of other departments influence work, and interface appropriately before conducting work.
Cyber systems are developed and maintained to ensure that they are secure, accredited by an appropriate authority and operated in accordance with procedures.	*Manager:* — Establishes procedures to ensure that computer security is fully integrated as an element of the overall nuclear security system; — Establishes procedures to support the security, accreditation and operation of cyber systems. *Personnel:* — Protect their passwords and information processed on the computer system; — Comply with all computer security requirements and report suspected vulnerabilities and threats, such as phishing scams.

TABLE II–6. NUCLEAR SECURITY CULTURE INDICATORS: WORK MANAGEMENT (cont.)

Indicator	Activity
Security personnel are kept motivated through the training system and incentives.	*Manager:* — Requires that regular exercises be conducted; — Holds physical fitness competitions for guard or response force personnel and recognizes the top competitors in the facility or activity newsletter and bulletin board; — Supports security personnel attendance at education and training (e.g. authorizing leave from duty station and potential temporary replacement); — Requires security personnel to attend training that provides them with a general understanding of the importance of their tasks, how those tasks impact the effectiveness of the facility or activity's nuclear security system, and the consequences of ineffective nuclear security to them, their families, the facility or activity, the environment and the State. *Security personnel:* — Participate in exercises; — Pursue training opportunities; — Participate in healthy competition that motivates them to perform their duties vigilantly; — Understand the importance of their tasks and how they contribute to overall nuclear security; — Understand the consequences of ineffective nuclear security and how it can affect them and their families.
Management takes action on feedback to counter negative trends in security.	*Manager:* — Immediately holds meetings when negative trends start to arise in security practices. At these meetings, manager shares the negative trends with personnel, requests their ideas on how to change them to be positive, and issues direction on what steps to take to counter the negative trends. *Personnel:* — Provide recommendations on how to improve nuclear security.

TABLE II–6. NUCLEAR SECURITY CULTURE INDICATORS: WORK MANAGEMENT (cont.)

Indicator	Activity
Minor security issues are addressed promptly.	*Manager:* — Establishes a procedure that includes a specific time frame within which security issues are to be addressed. For example, if a safe is left unlocked, the manager will notify the responsible person immediately and discuss how this can be avoided in the future. *Personnel:* — Take action to address minor security issues immediately and put in place a process so the issue does not happen again in the future.
Consideration is given to synergies and contradictions among security, safety and operations to avoid negative impacts during operation.	*Manager:* — Establishes a coordinating group that includes representatives of security, safety and operations and that meets on a regular basis to discuss ongoing activities, better understand how each field impacts the others and quickly come up with solutions to any conflicts. *Personnel:* — Participate in the coordinating group and discuss security, material accounting and control, safety, and operational conflicts openly to develop appropriate solutions.
The facility or activity has in place written policies, rules and procedures for recruitment, performance appraisal and termination of employment as they pertain to security.	*Manager:* — Incorporates security requirements into written procedures, policies and rules for recruitment, performance appraisals and terminations of employment. For example, certain positions may be subject to trustworthiness checks before employment. Personnel who have access to sensitive information may be required to have a security debriefing before termination of employment. *Personnel:* — Are aware of security requirements associated with their employment and performance evaluation; — Make sure that those requirements are met.

TABLE II–7. NUCLEAR SECURITY CULTURE INDICATORS: INFORMATION SECURITY

Indicator	Activity
Classification and control requirements are clearly documented and well understood by personnel.	*Manager:* — Establishes a training programme for personnel who will handle sensitive information or assets and distributes user friendly documents so personnel can easily reference how to handle, store and identify sensitive information; — Identifies a point of contact or other resource who can provide current guidance and answer questions on how to protect sensitive documents. *Personnel:* — Keep up to date on classification and control requirements; — Know whom to contact with questions regarding classification and control requirements.
Clear and effective processes and protocols exist for classifying and handling information both inside and outside the facility or activity.	*Manager:* — Establishes process and protocol for protecting and handling sensitive information that complies with nuclear security regulations.
Classified information is securely segregated, stored and managed.	*Manager:* — Establishes a procedure so all personnel conduct regular checks (e.g. at the end of a workday, before breaks) to confirm that sensitive information is stored appropriately. *Personnel:* — Conduct regular checks to confirm that sensitive information is stored securely.

TABLE II–7. NUCLEAR SECURITY CULTURE INDICATORS: INFORMATION SECURITY (cont.)

Indicator	Activity
Personnel are aware of and understand the importance of adhering to the controls on information.	*Manager and security personnel:* — Include the importance of protecting sensitive information in security training; — Discuss formally and informally the importance of these controls and the impact they could have on the facility or activity if not adhered to. *Personnel:* — Know how to access requirements for control of sensitive information and contact the appropriate managers with any questions.
Access to information and assets is restricted to those who need such access to perform their duties, have the necessary authority and have been subjected to a trustworthiness check commensurate to the sensitivity of the asset.	*Manager:* — Establishes procedures to restrict access to sensitive information and assets, and checks that personnel are adhering to these procedures. *Personnel:* — Only provide access to sensitive information and assets to those who have the appropriate authorization.
An information and computer security function is established, funded, staffed and visible.	*Manager:* — Integrates computer security into the overall nuclear security system and works with computer personnel to reduce security vulnerabilities; — Appoints a computer security manager; — Includes a budget for computer security activities in the overall budget. *Personnel:* — Know whom to contact with a computer security question, issue or suggestion for improvement.

TABLE II–7. NUCLEAR SECURITY CULTURE INDICATORS: INFORMATION SECURITY (cont.)

Indicator	Activity
Management is fully committed to and supportive of computer security initiatives.	*Manager:* — Discusses computer security initiatives in meetings; — Provides budget for initiatives; — Participates in rollout of initiatives.
A documented information technology security policy covering all information carriers exists and is known to all personnel.	*Manager:* — Includes computer security as an essential element of the overall nuclear security system; — Documents the computer security policy and stores it in a central location from which all personnel can easily access the most current version; — Distributes the policy to all personnel and has them sign acknowledgement of receipt and pledge to comply with the policy. *Personnel:* — Read and become familiar with the computer security policy, sign to acknowledge receipt and keep the policy easily accessible as an everyday reminder of requirements; — Actively comply with the computer security policy (e.g. do not share passwords, lock computer when leaving the work area); — Encourage peers to do the same.

TABLE II–7. NUCLEAR SECURITY CULTURE INDICATORS: INFORMATION SECURITY (cont.)

Indicator	Activity
Clear and effective processes, protocols and procedures exist for operating computer systems both inside and outside the facility or activity.	*Manager:* — Works with computer security personnel to document secure procedures for operating computer systems from both inside and outside the facility or activity; — Has a group of personnel pilot the procedures to gather feedback on effectiveness before rolling out the computer security policy on a large scale. *Personnel:* — Give feedback on the clarity and user friendliness of procedures for operating the facility or activity's computer system from both inside and outside the facility or activity; — Follow all procedures relating to operating the computer system.
Personnel understand and are aware of the importance of adhering to the controls within the computer security programme.	*Nuclear security culture coordinator, computer security manager and the training department:* — Provide training to personnel using case studies and events in which losses of personal and sensitive information have occurred; — Provide training to personnel explaining the current cyber threats and how personnel can make computer security more effective. *Personnel:* — Participate in training and associated discussions and understand why it is important to adhere to computer security requirements.
Computer systems are kept secure and are operated in accordance with the computer security baseline and procedures.	*Computer security manager and personnel:* — Establish policy for maintenance and operation; — Perform self-assessment and performance tests to assess policy effectiveness.

TABLE II–7. NUCLEAR SECURITY CULTURE INDICATORS: INFORMATION SECURITY (cont.)

Indicator	Activity
Computer breaches are regarded by all as serious and undesirable.	*Computer security manager and personnel:* — Share information on worldwide events and their consequences; — Respond immediately to any computer breach and inform all personnel of any new security practice to be adopted. *Personnel:* — Review information on computer breaches, share these events with peers and discuss how to prevent such breaches within their facility or activity.
Computer security requirements are clearly documented and well understood by personnel.	*Manager:* — Establishes a training programme for personnel who will use the facility or activity's computer systems and distributes user friendly documents so that personnel can easily reference the requirements; — Has a central location (e.g. section on facility or activity's intranet site) where the computer policy is stored and the current version can be easily accessed by personnel. *Personnel:* — Know how to access current computer security requirements and keep up to date on the actions needed to comply with the requirements.

TABLE II–8. NUCLEAR SECURITY CULTURE INDICATORS: OPERATION AND MAINTENANCE

Indicator	Activity
Operation and maintenance are performed according to approved procedures and vendor schedules to ensure that design requirements are not compromised.	*Manager:* — Establishes a maintenance plan and funds maintenance according to the plan; — Establishes operational procedures; — Includes operational experience in the maintenance plan and procedures (e.g. takes into consideration the historical operational life of each item); — Conducts performance tests to evaluate the effectiveness of procedure implementation and the function of devices and equipment.
Checklists or detailed procedures are used.	*Manager:* — Develops checklists based on vendor operation and maintenance guides that identify each task to be conducted for each item during scheduled preventive maintenance sessions; — Maintains completed checklists in appropriate file; — Conducts self-assessment to determine if checklists are being used.

TABLE II–8. NUCLEAR SECURITY CULTURE INDICATORS: OPERATION AND MAINTENANCE (cont.)

Indicator	Activity
Compensatory measures are taken when security equipment is taken out of service for maintenance or when breakdowns occur.	*Manager:* — Develops and implements compensatory measures when security equipment becomes non-operational; — Establishes a process to inform appropriate personnel when security equipment is not working for whatever reason and authorizes other equally secure alternate measures to be taken; — Establishes a graded approach for how long alternate measures can be in place before maintenance or repair has to be completed (e.g. critical parts need to be repaired more quickly); — Informs personnel of the alternate procedures that may be followed; — Conducts self-assessments to confirm that alternate measures have been put in place in a timely manner and are being followed to reduce the possibility of vulnerabilities. *Personnel:* — Follow all established security procedures, whether permanent or temporary.
Operational experience of security equipment is considered vital in maintenance and in planning purchases.	*Manager:* — Establishes a process to consistently receive operational experience of security equipment and incorporate it into the overall maintenance plan and the equipment replacement plan; — Maintains logs to record downtime and cause of downtime for each critical part; this information is considered when replacements are purchased.

TABLE II–8. NUCLEAR SECURITY CULTURE INDICATORS: OPERATION AND MAINTENANCE (cont.)

Indicator	Activity
Conservative decision making principles are applied in making decisions about the operational reliability of security software and hardware.	*Manager:* — Establishes a process in which subject matter expertise is included in decision making. Before purchases are made, a list of the equipment can be sent to appropriate personnel (e.g. operator of associated equipment, maintenance and repair personnel, security representative) to gather feedback on the items to be purchased. Information such as ease of operation, operational history (e.g. malfunctions, false alarms, life cycle), ease of maintenance, amount of maintenance, ease of repair and user friendliness is factored into future procurements of nuclear security equipment.
Operations and maintenance procedures are established consistent with the threats defined by the design basis threat.	*Manager:* — Establishes a process that requires security personnel to work with subject matter experts when developing operations and maintenance procedures.
Work orders for repair are prepared and maintenance of security equipment and hardware is performed expeditiously.	*Manager:* — Establishes a record or database to track repair and maintenance of security equipment; — Conducts self-assessments to evaluate if repair and maintenance is being conducted in accordance with time requirements.
Procedures are used effectively with no tendency to take shortcuts, even if maintenance is running behind schedule.	*Manager:* — Conducts walkthroughs and observes maintenance being performed; — Participates in post-maintenance performance test to ensure item in question is performing effectively; — Emphasizes importance of strictly following maintenance procedures during training sessions and at formal and informal gatherings such as briefings, meetings and presentations.

TABLE II–8. NUCLEAR SECURITY CULTURE INDICATORS: OPERATION AND MAINTENANCE (cont.)

Indicator	Activity
There is a system for documenting historical data on equipment and maintenance actions used in analyses of reliability and maintenance needs.	*Manager:* — Establishes record or database documenting operation and maintenance data for equipment and uses it when developing maintenance needs and recommendations for procurement of equipment.
There are rules in place defining and controlling maximum delay times for repairing security equipment.	*Manager:* — Establishes a list of critical parts that will be replaced immediately to limit vulnerabilities in the nuclear security system; — For each category of non-critical equipment, establishes maximum allowable outage times; — Conducts self-assessments to determine if equipment is being repaired within an acceptable time frame.
Resources are matched to demands so that critical spare parts and tools are available when needed.	*Manager:* — From the list of critical spare parts and operational experience, establishes a cache of spare parts and tools needed to repair nuclear security equipment within the required time frames.
There are rules for implementing compensatory measures when security equipment is out of order or being repaired.	*Manager:* — Establishes procedures for alternate security measures; — Establishes training in procedures for alternate security measures.
Opportunities are provided to hold workplace forums to discuss issues of mutual interest to operations and maintenance personnel.	*Manager:* — Provides formal and informal venues for operations, maintenance and security personnel to discuss and resolve issues.

TABLE II–9. NUCLEAR SECURITY CULTURE INDICATORS: DETERMINATION OF TRUSTWORTHINESS

Indicator	Activity
Documented personnel screening processes are matched to the risks and threats associated with the specific employment roles and responsibilities. Screening must be conducted, when appropriate, on a regular basis.	*State:* — Establishes a trustworthiness programme that oversees personnel assessments conducted using a graded approach, with stricter measures being placed on those with critical positions (e.g. with access to nuclear material, other radioactive material and sensitive information). These assessments can include employment and personal reference checks, police record checks, medical record checks and financial record checks. The process may be conducted initially when personnel are hired into critical positions and then on a continual basis, as personnel behaviour can change over time. Details of the trustworthiness programme can be determined in line with the actions described in sections 2–4 of Ref. [II–3].
The process of determining trustworthiness is capable of identifying specific security risk factors (e.g. mental illness, substance abuse).	*Manager:* — Implements a trustworthiness programme that complies with State level regulations and policy; — Certifies medical doctors, psychologists and testing facilities that can confidentially test personnel for substance dependency and medical or psychological conditions that could adversely affect personnel performance; — Ensures screening is conducted before a person's employment, then on a periodic basis as determined by the State; — Secures records of all personnel included in the trustworthiness programme, even after personnel are no longer in the programme. *Personnel:* — Complete all trustworthiness programme forms and tests in a timely manner and comply with all trustworthiness programme requirements.

TABLE II–9. NUCLEAR SECURITY CULTURE INDICATORS: DETERMINATION OF TRUSTWORTHINESS (cont.)

Indicator	Activity
Screening processes are rigorously followed, are subject to oversight and auditing, and are required for and applied to all levels of personnel at the facility or activity, including temporary personnel, contractor personnel and visitors.	*Manager:* — Conducts an assessment of the trustworthiness programme to determine if appropriate screening is conducted of all personnel. For example, temporary personnel might not require in-depth trustworthiness checks if escorted in certain areas of the facility.
Real or apparent failures of the screening processes are appropriately investigated and adjudicated.	*State or competent authority:* — Establishes procedures within the trustworthiness programme to assess effectiveness and ensure that processes are being implemented as was intended within the facility or activity. For example, the head of the facility or activity can provide periodic (e.g. biannual) reports on the effectiveness of the programme to the State. The information for these reports can be obtained through various methods, including written questionnaires and surveys completed by personnel in the programme. *Manager:* — Develops process for investigation and adjustment if programme processes appear to fail.
Personnel are aware of and understand the importance of trustworthiness determination.	*Manager:* — Communicates expectations of the trustworthiness programme to personnel through discussions with the individual, general emails or newsletters; — Promotes the screening programme as beneficial to personnel and the facility or activity, and as being in the best interests of nuclear security; — Holds informal and formal discussions about the importance of trustworthiness determination and encourages personnel to ask questions if certain elements are not clear.

TABLE II–9. NUCLEAR SECURITY CULTURE INDICATORS: DETERMINATION OF TRUSTWORTHINESS (cont.)

Indicator	Activity
Training is provided to management and other appropriate personnel to guide them in identifying apparent high risk behavioural symptoms and in applying other similar observational and analytical skills.	*State or competent authority:* — Establishes training for managers and other appropriate personnel on how to identify apparent high risk behavioural symptoms that could lead to abnormal behaviour.
The screening process addresses factors that might lead to degradation of trustworthiness, such as substance abuse, workplace violence or criminal or aberrant behaviour.	*State or competent authority:* — Institutes a screening programme that addresses risk factors identified as a threat to nuclear and other radioactive material and associated facilities and activities; — Certifies medical doctors and psychologists and employs testing facilities that can test personnel for substance dependency and medical or psychological conditions that could adversely affect personnel performance.
An effective insider threat mitigation programme, coordinated among all aspects of the facility or activity's security and operations, is in place.	*State or competent authority:* — Establishes official communication chains and procedures on how to interact with local law authorities and intelligence officials, along with internal departments (e.g. safety, security, nuclear material accounting and control, human resources), to develop and implement the most effective insider threat mitigation programme.
The process of background checks is periodically reviewed.	*State or competent authority:* — Establishes a regular time frame (e.g. annually) in which the trustworthiness programme is reviewed to determine if any changes to procedures are required; — Documents this review requirement in the procedures supporting the trustworthiness programme.

TABLE II–10. NUCLEAR SECURITY CULTURE INDICATORS: QUALITY ASSURANCE

Indicator	Activity
Assessment processes are in place for the security function.	*Manager:* — Establishes a quality assurance programme for the nuclear security system as one element of the integrated management system; — Establishes procedures to support the conduct of comprehensive performance testing at all levels (operational, system, force-on-force); — Establishes procedures to conduct self-assessments on a regular basis.
Personnel understand that the management system is relevant to the security function and to sustaining the nuclear security system.	*Manager:* — Promotes this concept through walkthroughs and discussions at meetings.
Security processes are prepared, documented and maintained in accordance with recommended quality assurance standards (e.g. recording of formal approval, periodic and planned review, testing, lessons learned).	*Manager:* — Establishes this requirement in the procedure for preparing security processes; — Conducts self-assessment to ensure compliance with requirements.
Quality assurance measures are enforced.	*Manager:* — Monitors through observations and walkthroughs; — Conducts a review if events are caused by quality assurance issues.

TABLE II–10. NUCLEAR SECURITY CULTURE INDICATORS: QUALITY ASSURANCE (cont.)

Indicator	Activity
Quality assurance procedures are periodically evaluated against best practices for the industry.	*Manager:* — Encourages personnel to attend international meetings regarding good practices; — Makes open source documents available for personnel to review; — Requires evaluation against best practices on a routine basis (e.g. annually).

TABLE II–11. NUCLEAR SECURITY CULTURE INDICATORS: CHANGE MANAGEMENT

Indicator	Activity
Change management processes are in place for changes that could affect the security function, whether directly or indirectly. Changes in such areas as operations, safety and security are coordinated with all potentially affected facilities or activities.	*Manager:* — Establishes a change management process to verify that changes to operations, nuclear material accounting and control, nuclear security or safety processes do not negatively impact another process before changes are made. Appropriate representatives within the facility or activity meet on a regular basis (e.g. monthly) and discuss the potential impact of any proposed changes. — Establishes a procedure that requires an evaluation to be conducted if implementing a change would require new or revised training. *Manager and personnel:* — Do not make changes that could affect nuclear security without first going through the established change management process; — Coordinate changes with personnel of all affected areas (e.g. operations, safety, security).
Changes are assessed to confirm that the desired outcomes have been obtained.	*Manager:* — Establishes a process that requires performance testing be conducted after any change to nuclear security measures to ensure that all security requirements are met and that nuclear material accounting and control, operations, and safety are not negatively impacted. *Personnel:* — Confirm that nuclear security measures are operating as intended or provide recommendations on how to achieve the desired outcome.

TABLE II–11. NUCLEAR SECURITY CULTURE INDICATORS: CHANGE MANAGEMENT (cont.)

Indicator	Activity
Evaluations are conducted upon completion of the change process to determine if the change has affected established security procedures.	*Manager:* — Establishes a process to evaluate the impact of the change on current procedures and charges authorized personnel with updating the procedures accordingly. The process also includes performance testing of the revised procedures. — Evaluates whether the change triggers new training requirements or changes to existing requirements. *Personnel:* — Provide their feedback on whether security procedures require revision and how to best update the procedures.
Personnel whose security related tasks are affected by changes receive the necessary training to handle the change.	*Manager:* — Establishes a process in which, once new training is developed, all personnel affected by the change receive the training. *Personnel:* — Ensure that they are up to date on all required training.
There is clarity about who is responsible and accountable for carrying out security related work.	*Manager:* — Publishes and disseminates organization chart with roles and responsibilities and contact information.
Baseline standards in procedures and facility design are established, from which changes are made and documented.	*Manager:* — Establishes a requirement to record each authorized and approved procedure as well as any changes made to it.

TABLE II–11. NUCLEAR SECURITY CULTURE INDICATORS: CHANGE MANAGEMENT (cont.)

Indicator	Activity
Before modifying or acquiring hardware, software or equipment, task analyses are performed that take human factors into consideration.	*Manager:* — Establishes a process in which equipment is used on a temporary or pilot basis to analyse human interaction with the modified or new hardware or software; — Analyses feedback from the pilot programme and uses the feedback to improve the process before implementing on a larger scale. *Personnel:* — Volunteer to participate in the pilot programme and give feedback on human factor issues.
Tests are conducted to ensure that replaced or modified equipment performs as expected.	*Manager:* — Establishes an operational testing programme that evaluates the performance of replaced and modified equipment; — Documents results of the operational tests and any changes made for equipment to perform as expected. *Personnel:* — Request results from equipment tests before operating replaced or modified equipment.
Before implementing changes to procedures, equipment, or facility or activity structure that are likely to affect security, a communication process is established to inform and encourage adherence.	*Manager:* — Establishes a coordinating group that reviews the potential impacts of changes and assesses whether the effectiveness of the security programme will be impacted; — Notifies personnel before the change of the impact it will have on their work and requests compliance with new requirements. *Personnel:* — Request clarity on changes and comply with new requirements.

TABLE II–12. NUCLEAR SECURITY CULTURE INDICATORS: FEEDBACK PROCESS

Indicator	Activity
Processes are in place to obtain, review and apply available national and international information that relates to the security function and the nuclear security system.	*State or competent authority:* — Requests International Physical Protection Advisory Service missions and IAEA training workshops. *Security personnel:* — Sign up for updates from the IAEA and other organizations to receive notifications when new nuclear security publications and other resources are available; — Participate in national level exchanges of information on nuclear security. *Manager:* — Reviews new information received from security personnel and determines if it can be applied within the facility or activity.
Processes are in place to allow and encourage members of the public and personnel to report abnormal conditions, concerns, actual events or near-misses and, when appropriate, to reward them.	*Manager:* — Establishes a programme that supports reporting by personnel, anonymously if desired, any concerns relating to nuclear security; — Encourages personnel to report any abnormalities and concerns; — Creates an environment that makes personnel feel comfortable about reporting such concerns; — Provides, when possible, feedback to personnel on the issues reported (e.g. how concern was addressed); — Rewards, when appropriate, personnel who assisted in major security successes through such reporting; — Establishes a phone number and email address that is given to the public so they can report any concerns or abnormal conditions. *Personnel:* — Report concerns so they can be addressed and hold manager responsible for providing feedback on how the concerns were addressed; — Facilitate dissemination of the phone number and email address to which the public can report concerns.

TABLE II–12. NUCLEAR SECURITY CULTURE INDICATORS: FEEDBACK PROCESS (cont.)

Indicator	Activity
Reports are reviewed by management and actions are taken to ensure that the operator of the facility or activity learns from experience in order to improve its performance.	*Nuclear security culture coordinator and manager:* — Establish a process that takes the report data and incorporates them into training and promotional activities and uses them as lessons learned to improve nuclear security performance.
Documented and established review systems for processes and procedures are in place to solicit comments and inputs from all bodies within the facility or activity.	*Manager:* — Establishes a process to solicit comments from personnel on processes and procedures. *Personnel:* — Actively use this process to give feedback on processes and procedures to improve nuclear security.
Feedback is valued and encouraged.	*Manager:* — Establishes a process for gathering feedback on a regular basis; — Evaluates feedback in a timely manner and responds, if feasible; — Announces, as appropriate, changes that will be made on the basis of feedback and gives credit to appropriate personnel; — Conducts walkthroughs and holds informal discussions to elicit feedback from personnel. *Personnel:* — Give feedback and hold manager responsible for providing response.

TABLE II–12. NUCLEAR SECURITY CULTURE INDICATORS: FEEDBACK PROCESS (cont.)

Indicator	Activity
Dissenting views, diverse perspectives and robust discussion of pending security related issues and changes are encouraged.	*Manager:* — Holds public and facility meetings to discuss major nuclear security related issues to request opinions; — Establishes a process to receive anonymous feedback; — Encourages, through formal and informal venues, personnel to give feedback.
Personnel are requested to critically review procedures and instructions during their use and to suggest improvements when appropriate.	*Manager:* — Establishes process for personnel to give feedback on procedures; — Conducts pilot implementations of new and revised procedures with a small group of personnel to receive feedback before implementing to wider group of personnel; — Announces changes made on the basis of personnel feedback and attributes the changes to the personnel review. *Personnel:* — Provide recommendations on how to improve procedures and instructions, and hold manager responsible for making changes on the basis of the feedback.

TABLE II–13. NUCLEAR SECURITY CULTURE INDICATORS: CONTINGENCY PLANS AND DRILLS (EXERCISES)

Indicator	Activity
Contingency plans are in place to address the defined threats and responses.	*Nuclear security culture coordinator and the operator of the facility or activity:* — Establish contingency plans in accordance with Refs [II–4, II–5].
The contingency plans are tested periodically through drills and other means to ensure that they are effective and current, and that the individuals involved are familiar with the plans and their roles in implementing them.	*Nuclear security culture coordinator:* — Trains the appropriate personnel on the contingency plan and their role in implementing the plan. *Facility or activity operator:* — Establishes robust performance testing programme to test the contingency plan through exercises involving as many personnel as possible. *Personnel:* — Participate in training and drills and request clarification of their role, if necessary.
All nuclear security systems are tested periodically to ensure that they are functional and available when needed. Special attention is paid to systems that are not activated during normal operation.	*Facility or activity operator:* — Establishes performance testing programme of nuclear security measures; — Conducts self-assessment of testing programme to verify that it is being implemented in accordance with procedures.

TABLE II–13. NUCLEAR SECURITY CULTURE INDICATORS: CONTINGENCY PLANS AND DRILLS (EXERCISES) (cont.)

Indicator	Activity
The human factor in nuclear security systems is evaluated periodically to ensure that personnel are alert and available when needed. Special attention is paid to the human factor during periods of reduced activity such as during the back shift and weekends.	*Manager:* — Establishes a performance testing programme for personnel and procedures; — Conducts walkthroughs randomly during each shift to observe how personnel are performing; — Requests input from personnel on how to keep themselves operating at their most effective levels. *Personnel:* — Participate in performance testing and provide recommendations on how to keep personnel alert and equipment operating most effectively.
Contingency plans are coordinated with and linked to a relevant national strategy.	*Facility or activity operator:* — Establishes a procedure that requires contingency plans to flow down from State level documents and might require approval by the competent authority.
Contingency plans are tested not just with on-site forces but also in coordination with off-site responders.	*Facility or activity operator:* — Establishes a procedure and agreements with off-site responders to conduct performance tests of contingency plans with on-site guard or response forces.
Management is trained to deal effectively with exceptional situations for which no procedures have been devised and when no management supervision is available.	*Facility or activity operator:* — Completes training on the objectives of the nuclear security system and how to perform in abnormal situations.

TABLE II–13. NUCLEAR SECURITY CULTURE INDICATORS: CONTINGENCY PLANS AND DRILLS (EXERCISES) (cont.)

Indicator	Activity
Provisions are in place to ensure that security readiness can be temporarily tightened during times of increased threat (e.g. introduction of additional measures, reduction of access).	*Facility or activity operator:* — Establishes procedures that document how, when and why security measures are enhanced in times of increased threat.
Contingency plans are based on sound human performance principles.	*Facility or activity operator:* — Establishes a procedure that requires exercises to be followed by a thorough post-exercise evaluation to identify if any elements of the contingency plan require personnel to perform beyond their capacity; — Modifies contingency plans after an evaluation of performance test results and re-evaluates human performance capability of modified sections during the next exercise.
The facility or activity operator provides adequate information on potential risks to public authorities, such as first responders, the police, the military, medical facilities and environmental authorities.	*Facility or activity operator:* — Establishes one-on-one and group discussions with the local public authorities to discuss risks associated with abnormal situations and steps that can be taken to mitigate that risk.

TABLE II–14. NUCLEAR SECURITY CULTURE INDICATORS: SELF-ASSESSMENT

Indicator	Activity
A nuclear security self-assessment programme is documented with a plan that defines self-assessment processes.	*Facility or activity operator:* — Develops and implements means and procedures for evaluations, including performance testing.
Identified deficiencies are analysed to identify and correct emerging patterns and trends.	*Facility or activity operator:* — Has a process to conduct root cause analyses, create corrective action plans and compare the results of the analyses over time.
Human factor methodologies are incorporated into problem analysis techniques.	*Manager:* — Includes consultation advice from professional psychologists and sociologists specializing in understanding a wide range of human factor phenomena in nuclear security activities.
Performance is benchmarked to compare operations against national and international best practices.	Specific data on the effectiveness of operations of security programmes might not be publicly available owing to the sensitive nature of information. *Manager:* — Supports participation in events at which others are sharing good practices in order to (a) internally compare the facility or activity's practices and (b) implement any good practices that can make the facility or activity's nuclear security system more effective.
Operational performance is observed to confirm that expectations are being met.	*Manager:* — Conducts walkthroughs of the facility on a periodic basis, including during night shifts and weekends.

TABLE II–14. NUCLEAR SECURITY CULTURE INDICATORS: SELF-ASSESSMENT (cont.)

Indicator	Activity
Corrective action plans are developed on the basis of self-assessment findings, and implementation of these plans is tracked.	*Manager:* — Establishes a procedure that requires corrective action plans to be developed as an element of the facility or activity self-assessment programme; — Establishes a database to record progress of implementation of the corrective action plans and identify personnel to track and report on progress on a regular basis (e.g. monthly).
Assessment of nuclear security systems takes into account the current design basis threat assessment and regulatory requirements.	*Manager:* — Includes in the self-assessment programme requirements that the nuclear security system be evaluated on the basis of the current threat assessment or design basis threat and regulatory requirements.
Personnel understand their responsibility for improvements instituted as a result of security assessments.	*Manager:* — Identifies specific personnel responsible for certain corrective actions and discusses with them the steps they will take to implement the required improvements.
Senior management plays a visible role in the promotion, preparation and conduct of self-assessment.	*Senior manager:* — Hosts a meeting of all personnel to announce the conduct of the self-assessment and requests everyone's participation and cooperation, explaining the importance of the evaluation and how it will make nuclear security more effective; — Meets with the team that will conduct the self-assessment to review the assessment plan and areas of focus; — Participates in a set of performance tests to directly observe the nuclear security system in operation; — Meets with the self-assessment team on a regular basis (e.g. weekly) to receive updates on conduct of the evaluation.

TABLE II–14. NUCLEAR SECURITY CULTURE INDICATORS: SELF-ASSESSMENT (cont.)

Indicator	Activity
The facility or activity operator views assessments, reviews and audits as opportunities rather than burdens.	*Manager:* — Emphasizes to all personnel the importance of these reviews and how they benefit the facility or activity (e.g. its effectiveness, prestige and ability to continue operating); — Requests feedback from personnel on how reviews can be conducted most effectively and what other benefits can be achieved.
There is an established procedure to continuously monitor security culture through the use of indicators to implement improvements and prevent the degradation of nuclear security culture.	*Manager:* — Establishes a procedure to implement nuclear security culture self-assessments as suggested in Ref. [II–2].
Management measures the extent to which training programmes contribute to improvements in attitudes towards nuclear security.	*Manager:* — Uses the indicators for training and qualifications as a focus of a nuclear security culture self-assessment, as detailed in Ref. [II–2]; — Has training personnel issue surveys before and after certain training to identify changes in attitudes.
Self-assessment results are shared to the extent possible throughout the industry as part of the exchange of good practices.	*Manager:* — Supports sharing of non-sensitive self-assessment results through good practice exchanges.

TABLE II–15. NUCLEAR SECURITY CULTURE INDICATORS: INTERFACE WITH THE REGULATORY BODY (AND LAW ENFORCEMENT BODIES)

Indicator	Activity
Information is freely and regularly exchanged between the regulatory body and the operator of the facility or activity.	*Nuclear security culture coordinator:* — Has regular meetings with the competent authority to understand overall security concerns (vulnerabilities and threats) and security event trends, so as to implement improvements.
Information regarding vulnerabilities and threats is relayed in a timely manner.	*Nuclear security culture coordinator:* — Has regular meetings with the competent authority to understand overall security concerns (vulnerabilities and threats) and security event trends, so as to implement improvements.
Regulatory interface roles are clearly defined and interagency processes are streamlined.	*Competent authority:* — Works to ensure regulatory interface roles are clearly defined and interface processes are streamlined.
Facility or activity operator reports nuclear security incidents to the regulatory body or competent authority.	*Manager:* — Establishes and implements a process to report nuclear security events as required by the regulations or competent authority.
Facility or activity operator fully understands the regulatory body's responsibility.	*Manager:* — Hosts a representative of the competent authority on a regular basis (e.g. every six months) to speak at a meeting with all personnel on the competent authority's responsibility and how it affects the facility or activity and its personnel. The meeting includes a question and answer session.

TABLE II–15. NUCLEAR SECURITY CULTURE INDICATORS: INTERFACE WITH THE REGULATORY BODY (AND LAW ENFORCEMENT BODIES) (cont.)

Indicator	Activity
Facility or activity operator shows respect for the regulatory body, and its mission enjoys visible support and cooperation from management.	*Manager:* — Opens the meetings with the competent authority, emphasizing the facility or activity operator's support for the competent authority's mission.
Personnel view the regulatory presence on the site positively.	*Manager:* — Discusses with personnel, in formal and informal settings, the benefits the facility or activity receives from the competent authority.

TABLE II–16. NUCLEAR SECURITY CULTURE INDICATORS: COORDINATION WITH OFF-SITE ORGANIZATIONS

Indicator	Activity
Frequent personnel and management level communication is accomplished with local and national organizations involved in nuclear security.	Local and national organizations involved in nuclear security might include nuclear security support centres of excellence, universities, non-governmental organizations and think tanks. *Manager:* — Supports personnel interacting with local and national organizations involved in nuclear security, as appropriate. *Manager and personnel:* — Interact with local and national organizations involved in nuclear security by carrying out peer reviews of papers and journal articles on nuclear security, giving presentations on nuclear security, teaching a specific topic at a nuclear security support centre or centre of excellence, mentoring students, giving a guest lecture at a university, or providing input on a research topic.
Written agreements are in place with appropriate organizations to facilitate assistance, communication and timely response to incidents.	*Competent authority:* — Negotiates written agreements with international partners to facilitate assistance and response to events. *Manager:* — Negotiates written agreements with various local responders to facilitate timely response to nuclear security events.

TABLE II–16. NUCLEAR SECURITY CULTURE INDICATORS: COORDINATION WITH OFF-SITE ORGANIZATIONS (cont.)

Indicator	Activity
Off-site and on-site security exercises are held regularly and lessons are incorporated into procedures and memorandums of understanding.	*Manager:* — Establishes and implements security exercises on a regular basis (e.g. annually) for all personnel potentially involved in the response, including primary responders, secondary responders and support personnel; — Includes requirement for post-exercise evaluation to identify any changes that will be made to procedures and memorandums of understanding that detail the roles and responsibilities of each response organization. *Personnel:* — Participate in the security exercises and give feedback and suggestions on changes to be made to procedures.
Contractors are aware of all security procedures after undergoing the relevant training before starting work.	*Manager:* — Requires mandatory in-person or computer based training for contractors before they start work for the facility or activity; — Requires contractors to pass a mandatory test based on the training before starting work for the facility or activity; — Requires contractors to sign a document stating they are aware of the security procedures, their responsibility to adhere to them and the importance of the procedures for security in general.

TABLE II–16. NUCLEAR SECURITY CULTURE INDICATORS: COORDINATION WITH OFF-SITE ORGANIZATIONS (cont.)

Indicator	Activity
Outside stakeholders are consistently involved (with adherence to the 'need to know' principle) when problems are being solved and decisions are being made.	*Manager:* — Works closely with the competent authority, when appropriate, to resolve nuclear security related problems; — Requests input from outside stakeholders (e.g. competent authority, other government departments, law enforcement, emergency services personnel), as appropriate, to assist in the resolution of nuclear security related problems.
There is a system for communication and cooperation with current and potential suppliers and contractors that covers security related issues.	*Manager:* — Establishes a procedure so current contractors are included on distribution of appropriate security related information.
Participation in recognized courses and events (e.g. those convened by the IAEA) is encouraged and supported by management.	*State or competent authority:* — Requests International Physical Protection Advisory Service missions and IAEA training workshops; — Authorizes personnel to participate in international meetings hosted by such organizations as the IAEA, the Global Initiative to Combat Nuclear Terrorism, the World Institute for Nuclear Security and the International Criminal Police Organization. *Manager:* — Encourages and supports personnel participation in nuclear security related courses and events as the budget and schedule allow. *Personnel:* — Request support to attend established nuclear security courses and events.

TABLE II–16. NUCLEAR SECURITY CULTURE INDICATORS: COORDINATION WITH OFF-SITE ORGANIZATIONS (cont.)

Indicator	Activity
International publications and reports covering nuclear security are available to relevant personnel.	*Manager:* — Establishes a library (physical or virtual) of international and national nuclear security publications and reports; — Encourages personnel to enhance their knowledge and awareness by reading these publications and reports. *Personnel:* — Keep up to date on nuclear security issues by reading the publications and reports and discussing their findings with peers.
The facility or activity operator participates in international cooperation on nuclear security issues. The competent authority can authorize specific facility or activity participation in nuclear security international cooperation.	*Competent authority:* — Authorizes participation of the specific facility or activity operator in international nuclear security cooperation. *Once authorized, the manager:* — Authorizes personnel to support nuclear security cooperation; — Provides direction for the cooperation; — Remains involved to track progress. *Personnel:* — Provide recommendations to the manager on potential areas of nuclear security cooperation. Once approved, personnel can participate in nuclear security cooperation and report progress to the manager.

TABLE II–16. NUCLEAR SECURITY CULTURE INDICATORS: COORDINATION WITH OFF-SITE ORGANIZATIONS (cont.)

Indicator	Activity
Nuclear security information from international publications is made available, when possible, in the local language.	*Competent authority:* — Works with international organizations to request copies of publications in the local language. *Manager:* — Requests that publications be translated into the local language under international nuclear security cooperation. *Personnel:* — Keep up to date on nuclear security issues by reading the publications and reports and discussing findings with peers.

TABLE II–17. NUCLEAR SECURITY CULTURE INDICATORS: RECORD KEEPING

Indicator	Activity
Record keeping is a prerequisite for effective functioning of the security regime and its assessment.	*Manager:* — Establishes a procedure requiring specific record keeping for such elements as security functions, duties, shift turnovers and access control; — Conducts a self-assessment to verify that record keeping is being conducted per the procedure. *Personnel:* — Follow requirements for record keeping and conduct random checks to monitor compliance; personnel will influence their peers to maintain strict records as well.
Records and log books are user friendly and easily accessible.	*Manager:* — Requests personnel feedback on user friendliness of record keeping procedures; — Establishes a procedure that details required location for, and requirements for access to, records and log books. *Personnel:* — Give feedback to managers on clarity and user friendliness of record keeping procedures and inputting of entries into log books.
Records are analysed, and there is a procedure for obtaining relevant information from current records and log books as well as from archives.	*Manager:* — Establishes a procedure that details how information from records, log books and archives can be accessed and by whom; — Establishes a procedure to analyse records on a regular basis (e.g. weekly or monthly, depending on type of record) to identify any abnormal situations or trends.

TABLE II–17. NUCLEAR SECURITY CULTURE INDICATORS: RECORD KEEPING (cont.)

Indicator	Activity
There is a mechanism to protect confidential records.	*Manager:* — Establishes a procedure that defines requirements on how to protect various levels of records, both hard copies and electronic files, on the basis of the sensitivity of the information contained in them; — Establishes a procedure for the exchange of sensitive information with outside organizations; — Maintains records in secure format but allows authorized people to have access (e.g. the security managers need to receive personal information from visitors to process access authorization).
Log books are used correctly.	*Manager:* — Establishes a procedure detailing how log books are to be completed, reviewed and checked; — Reviews whether the procedure is being followed by checking during walkthroughs and self-assessments.

CHARACTERISTICS OF LEADERSHIP BEHAVIOUR

Expectations

II–25. Managers establish performance expectations for nuclear security roles to guide personnel in carrying out their responsibilities (see Table II–18).

Use of authority

II–26. Managers establish the responsibility and authority of each position within the nuclear security organization. They do not abuse their authority to override nuclear security requirements (see Table II–19).

Decision making

II–27. Implementation of a formal and inclusive decision making process demonstrates to personnel the importance of nuclear security decisions and provides them with a sense of ownership (see Table II–20).

Management oversight

II–28. A strong nuclear security culture is dependent on the behaviour and attitudes of personnel. Personnel are very strongly influenced by positive supervisory skills (see Table II–21).

Involvement of personnel

II–29. Performance is improved when personnel are encouraged to share their ideas, especially when those ideas are acted on by management (see Table II–22).

Effective communications

II–30. One indicator of a strong nuclear security culture is the quality of communication established by managers (see Table II–23).

Improving performance

II–31. To instil vigilance, it is recommended that personnel strive to continuously improve nuclear security effectiveness. Managers establish processes and show by example that they expect personnel to recommend ways to improve (see Table II–24).

Motivation

II–32. There are many references available on how managers can motivate personnel; this publication provides only a few simple examples. The nuclear security culture coordinator is encouraged to read additional texts on this topic to develop a more robust approach to motivate personnel to continually improve nuclear security. In addition, the nuclear security culture coordinator can work with psychologists for ideas on how to motivate personnel (see Table II–25).

Text cont. on p.156.

TABLE II–18. NUCLEAR SECURITY CULTURE INDICATORS: EXPECTATIONS

Indicator	Activity
Management communicates to personnel specific expectations for performance in areas that affect the nuclear security system.	*Manager:* — Issues mission statements and security policy advising personnel of the expectations; — Includes security as a topic of discussion in every meeting to remind personnel of its importance.
Management ensures that resources are available to provide effective nuclear security.	*Manager:* — Reviews the budget for security and discusses with personnel the implications of funding or not funding specific requests; — Conducts a cost–benefit analysis to ensure that the risk level is acceptable (while meeting regulatory requirements).
Management leads by exampleand — as is expected from all personnel — adheres to policies and procedures in their personal conduct.	*Manager and personnel:* — Adhere to all sevcurity policies and procedures without complaint or requests for exceptions, reinforcing the importance of adhering to these policies and procedures to their subordinates and peers.
Management personally inspects performance in the field by conducting walkthroughs, listening to personnel and observing work being conducted, and then taking action to correct deficiencies.	*Manager:* — Sets up and informs personnel of scheduled walkthroughs.

TABLE II–18. NUCLEAR SECURITY CULTURE INDICATORS: EXPECTATIONS (cont.)

Indicator	Activity
A sense of urgency to correct significant security weaknesses or vulnerabilities is demonstrated.	*Manager:* — Requests regular updates on status of corrective actions to address security vulnerabilities; — Requires that compensatory measures be implemented immediately until corrective actions are complete; — Provides the necessary resources for completing the corrective actions to address significant security vulnerabilities as soon as reasonably possible. *Personnel:* — Report any security vulnerabilities immediately on discovering them; — Hold manager responsible for correcting significant security vulnerabilities immediately.
Degraded nuclear security conditions are recognized and corrective action is taken.	*Manager and personnel:* — Have appropriate experience and training to effectively recognize nuclear security system vulnerabilities and work to identify the most effective corrective actions.
Management visibly supports the high levels of security defined in a security policy or code of conduct.	*Manager and personnel:* — Comply with all nuclear security policies and procedures; — Complete all nuclear security training requirements. *Manager:* — Provides appropriate resources to support effective nuclear security.
Management makes their security commitment known to personnel, while seeing to it that this commitment translates into daily routine.	*Manager and personnel:* — Comply with all nuclear security policies and procedures; — Complete all nuclear security training requirements. *Manager:* — Provides appropriate resources to support effective nuclear security.

TABLE II–18. NUCLEAR SECURITY CULTURE INDICATORS: EXPECTATIONS (cont.)

Indicator	Activity
Management provides ongoing reviews of performance of assigned roles and responsibilities to reinforce expectations and ensure that key security responsibilities are being met.	*Manager:* — Conducts self-assessment focused on the roles and responsibilities of nuclear security personnel; — Conducts walkthroughs to observe actions of key security personnel.
Personnel can describe how management inspects worksites to ensure that procedures are being used and followed in accordance with expectations.	*Personnel:* — Inform peers and self-assessment team members how manager conducts walkthroughs of work areas and observes them to ensure work is in compliance with procedures.
Constructive feedback is used to reinforce expected behaviour.	*Manager:* — Provides constructive feedback to personnel during walkthroughs of work areas, during one-on-one meetings, on written reports, and after performance tests and other nuclear security exercises.
Personnel can cite examples of high expectations from senior management regarding security.	*Personnel:* — Understand what is expected from them by managers and work to exceed those expectations.

TABLE II–18. NUCLEAR SECURITY CULTURE INDICATORS: EXPECTATIONS (cont.)

Indicator	Activity
Senior management encourages workforce to look at other facilities or activities or other parts of their own facility or activity to see what they can learn from them.	*Manager:* — Shares good practices between facility or activity departments and encourages personnel to share details so that, if applicable, a practice can be implemented in other areas of the facility or activity. *Personnel:* — Are eager to share their success and good practices to improve overall facility or activity performance.

TABLE II–19. NUCLEAR SECURITY CULTURE INDICATORS: USE OF AUTHORITY

Indicator	Activity
Designated management demonstrates good knowledge of what is expected of them, and recognizes and takes charge of all adverse security situations or situations in which vulnerability is heightened (e.g. when the nuclear security system is degraded or when the threat level is increased).	*As soon as a security vulnerability is identified, the manager:* — Takes an immediate interest and provides leadership as necessary. For example, if the threat level is increased, the manager might hold a personnel meeting providing the updated information (in accordance with information security requirements) and request personnel to be more vigilant, welcoming them to report any unusual activity.
Managers make themselves approachable, allow effective two way communication and encourage personnel to report concerns or suspicions without fear of subsequently suffering disciplinary actions.	*Manager:* — Has a written and published ‘open door’ policy, making sure to always provide time in the daily schedule for personnel to directly report concerns. All such discussions are held in confidence.
Management does not abuse their authority to circumvent security.	*Manager:* — Adheres to all security policies and procedures without complaint or requests for exceptions, reinforcing the importance of adhering to these policies and procedures to their subordinates and peers.

TABLE II–19. NUCLEAR SECURITY CULTURE INDICATORS: USE OF AUTHORITY (cont.)

Indicator	Activity
Management spends time observing and coaching personnel at their work locations.	*Manager:* — Conducts walkthroughs of work areas and works with personnel to improve actions and discuss issues.
Management holds people accountable for their behaviour.	*Manager:* — Immediately stops any behaviour that could impact the effectiveness of the nuclear security system and discusses the event with the subordinate to determine the cause and apply corrective action; — Assesses personnel on nuclear security in their annual performance evaluation; — Applies sanctions, in accordance with established procedure, fairly and evenly.
Vigorous corrective and improvement action programmes are in place, supervised by management.	*Manager:* — Implements corrective and improvement programmes, such as the following: • Personnel suggestions; • Root cause analyses; • Lessons learned. — Supervises these programmes and encourages personnel to participate appropriately. *Personnel:* — Provide recommendations on how to improve nuclear security and the nuclear security culture.
Management launches, if necessary, procedures for investigating security problems, seeking advice on the causes of such problems and the improvements to be implemented.	*Manager:* — Establishes a procedure and method for analysing security events, to include root cause analyses, and develops a procedure for the development of the associated corrective action plan; — After ensuring that sensitive data is not compromised, disseminates security event information to discourage similar events from occurring again.

TABLE II–19. NUCLEAR SECURITY CULTURE INDICATORS: USE OF AUTHORITY (cont.)

Indicator	Activity
Management defines a strategy to bring information on the current security policy to the attention of personnel.	*Manager:* — Posts security policy as appropriate, maintains it in the nuclear security library and holds meetings with personnel to discuss the policy.
If possible, senior management prevents downsizing of personnel that will affect security, despite financial restraints.	*Security personnel:* — Conduct vulnerability assessments and document any vulnerability that could arise from downsizing key personnel. *Manager:* — Uses this information to actively lobby for additional resources so that a reduction in the number of personnel does not affect nuclear security effectiveness.
Management provides fair treatment of subordinates, understanding that errors are unavoidable, but that security breaches must be analysed and corrective actions implemented.	*Manager:* — Encourages reporting of errors so that mistakes can be corrected and not repeated.

TABLE II–20. NUCLEAR SECURITY CULTURE INDICATORS: DECISION MAKING

Indicator	Activity
Management makes decisions when the situation warrants.	*Manager:* — Makes decisions in an educated and timely manner within his or her authority.
Management explains their decisions when possible.	*Manager:* — Explains his or her decisions to personnel, with the understanding that the manager might not be able to explain all security decisions owing to the sensitive nature of some information.
Management solicits dissenting views and diverse perspectives, when appropriate, for the sake of strengthening the decision taken.	*Manager:* — Solicits input from personnel, as appropriate, when making decisions. *Personnel:* — Provide insight and valid ideas for improvement.
Management does not shorten or bypass the decision making processes.	*Manager:* — Follows the decision making process, allowing that some instances require more immediate decisions than others.
Decisions are made by those qualified and authorized to make them.	*Personnel:* — Make decisions that are within the approved authority of their position.
Security related decisions from management are seen as reasonable.	*Manager:* — Announces security initiatives to personnel, providing an explanation, as appropriate, so that personnel can better understand why the initiatives are being implemented.

TABLE II–20. NUCLEAR SECURITY CULTURE INDICATORS: DECISION MAKING (cont.)

Indicator	Activity
Management is actively involved in balancing priorities to achieve timely resolutions.	*Manager:* — Balances priorities such as security, safety and operations. To achieve timely resolution, the manager actively meets with managers of other departments to openly discuss issues and develop common, agreed resolutions.
Management supports and reinforces conservative decision making regarding security.	*Manager:* — Mentors personnel in considering costs and risk reduction when making decisions regarding nuclear security to prevent hasty and costly decisions.

TABLE II–21. NUCLEAR SECURITY CULTURE INDICATORS: MANAGEMENT OVERSIGHT

Indicator	Activity
Management spends time observing, correcting and reinforcing the performance of personnel at their work locations.	*Manager:* — Conducts walkthroughs and provides corrections in a timely, private and constructive manner. Comments on high quality work are also provided in a timely manner.
Constructive feedback is used to reinforce behaviour expected from personnel.	*Manager:* — Conducts walkthroughs to perform oversight and provides corrections in a timely, private and constructive manner. Comments on high quality work are also provided in a timely manner.
Personnel are held accountable for adherence to established policies and procedures.	*Manager:* — Communicates expectations in writing and verbally that all personnel need to adhere to policies and procedures. Any diversion from the policies and procedures is written and documented in personnel records, including in performance evaluations.
Personnel are empowered to make technical decisions involving nuclear security matters.	*Personnel:* — Have a written document that specifies their authority to make technical decisions and describes when decisions need to be elevated to management.

TABLE II–21. NUCLEAR SECURITY CULTURE INDICATORS: MANAGEMENT OVERSIGHT (cont.)

Indicator	Activity
Managers ensure that they understand the safety and security performance of their facility or activity and take steps to maintain adequate oversight of security.	*Manager (continually):* — Reviews results of self-assessments, independent oversight inspections and performance tests to see how reports compare or contrast; — Follows up with questions to personnel regarding results of self-assessments, independent oversight inspections and performance tests to delve a level deeper in detail; — Conducts walkthroughs to personally observe performance; — Requests feedback on performance from personnel; — Works with personnel to improve the effectiveness of the nuclear security system.
Management appreciates the importance of security culture in the accomplishment of security tasks.	*Manager:* — Leads by example and expects workers to look for ways to learn and improve their performance continually; — Values learning from others, both within and outside the facility or activity; — Recognizes, respects and values personnel for their contribution to nuclear security; — Encourages personnel to make suggestions; — Coaches personnel to improve their performance; — Considers personnel an important part of the facility or activity and pays attention to satisfying personnel needs, not just achieving technical efficiency.

TABLE II–21. NUCLEAR SECURITY CULTURE INDICATORS: MANAGEMENT OVERSIGHT (cont.)

Indicator	Activity
Management ensures that a security conscious environment permeates the facility or activity.	*Manager:* — Leads by example and expects workers to continually look for ways to learn and improve their performance; — Supports the nuclear security culture coordinator and the implementation of the action plan; — Conducts walkthroughs to observe and discuss nuclear security performance; — Discusses lessons learned from security events with personnel; — Motivates personnel to continually take responsibility for nuclear security and want to improve nuclear security; — Provides an environment that supports reporting of events and mistakes so they can be corrected and minimized in future.
Management monitors personnel's coping skills and stress and fatigue levels.	*Manager:* — Conducts walkthroughs to observe personnel performance and checks if they are visibly stressed or fatigued; — Encourages personnel to seek assistance for coping with stressors (e.g. from the personnel assistance programme) and approves time off from work accordingly; — Provides an environment that welcomes reporting of abnormal behaviour by peers so personnel can get the assistance they need.

TABLE II–21. NUCLEAR SECURITY CULTURE INDICATORS: MANAGEMENT OVERSIGHT (cont.)

Indicator	Activity
Management builds trust and promotes teamwork within the facility or activity.	*Manager:* — Communicates honestly as proved by his or her actions; — Is open to ideas from personnel; — Is responsible and accountable for actions; — When communicating, knows what to share and what not to share (e.g. personal information); — Treats all personnel equally; — Is compassionate and helps personnel balance multiple priorities; — Appreciates the work done by personnel; — Manages the direction and scope of the work; — Makes it easier for personnel to successfully complete work by removing obstacles; — Uses personnel for various tasks according to their strengths and weaknesses; — Listens to the concerns and suggestions of personnel. *Personnel:* — Are open to working with various personnel from the facility or activity and look forward to receiving different views and new ideas to incorporate into day to day operations; — Welcome new personnel into their work routine and seek mentoring opportunities.
Management ensures periodic audits and updates of computer security policy and procedures.	*Manager:* — Participates in review of the computer security procedure and makes sure it includes an ongoing evaluation process with vulnerability assessments, periodic audits and continual improvement.

TABLE II–22. NUCLEAR SECURITY CULTURE INDICATORS: INVOLVEMENT OF PERSONNEL

Indicator	Activity
Management involves personnel in the risk assessment and decision making processes and other activities that affect them.	*Manager:* — Establishes a team of various nuclear security experts to conduct the facility or activity risk assessment and provide recommendations. — Holds brainstorming sessions with personnel to generate ideas and alternative solutions when making major decisions. During this brainstorming session, the manager does the following: • Concentrates on the one issue to resolve; • Entertains all ideas; • Defers judgement until the group has agreed on best ideas. *Personnel:* — Actively participate in brainstorming sessions and offer managers constructive input and opinions to assist with the decision making process.
Personnel are encouraged to make suggestions and are properly recognized for their contributions.	*Manager:* — Implements a personnel suggestion programme and encourages personnel to participate; — Recognizes performance of personnel through recognition letters, certificates of appreciation and publicized awards (see paras 3.49 and 3.50 for additional information). *Personnel:* — Actively participate in the personnel suggestion programme and provide constructive suggestions on how to improve nuclear security and the nuclear security culture.

TABLE II–22. NUCLEAR SECURITY CULTURE INDICATORS: INVOLVEMENT OF PERSONNEL (cont.)

Indicator	Activity
Personnel are actively involved in the identification, planning and improvement of security related work and work practices.	*Manager:* — Implements a personnel suggestion programme and encourages personnel to participate; — Acts on valid ideas submitted through the personnel suggestion programme and includes personnel in the planning and implementation stages of the improvement to nuclear security. *Personnel:* — Actively participate in the personnel suggestion programme and provide constructive suggestions on how to improve nuclear security and the nuclear security culture.
Personnel report any problem in confidence because they know that questioning attitudes are encouraged.	*Manager:* — Encourages personnel to report concerns; — Acts on the concern and provides personnel with feedback on how it was addressed. *Personnel:* — Report any nuclear security concerns immediately, and encourage their peers to report nuclear security concerns.
Systems are in place to ensure that it is easy, straightforward and welcome for personnel to raise issues pertaining to potential or anticipated security related weaknesses and threats.	*Manager:* — Establishes a process for personnel to report concerns and nuclear security issues. The process includes a way to report concerns anonymously. — Disseminates information on the process so that personnel understand how to report their concerns and to whom. — Creates a work environment that encourages personnel to report concerns. *Personnel:* — Report security related issues and encourage their peers to do the same.

TABLE II–22. NUCLEAR SECURITY CULTURE INDICATORS: INVOLVEMENT OF PERSONNEL (cont.)

Indicator	Activity
Personnel are able to contribute their insights and ideas for addressing problems, and mechanisms are in place to support their contributions.	*Manager:* — Conducts brainstorming sessions; — Implements personnel suggestion programme; — Recognizes personnel who contribute to more effective nuclear security. *Personnel:* — Submit their recommendations on how to improve nuclear security and the nuclear security culture and hold managers responsible for giving feedback.
Plans are in place to handle labour strikes without unacceptable impact on nuclear security.	*Manager:* — Includes the possibility of labour strikes when developing security and contingency plans so that procedures cover this scenario and there is a solution that does not have an unacceptable impact on nuclear security; — Processes the security and contingency plans through competent authority approvals to receive support for the solution and assistance if there is a strike (e.g. competent authority could assist in the negotiation of temporarily using another facility's guard or response force).

TABLE II–23. NUCLEAR SECURITY CULTURE INDICATORS: EFFECTIVE COMMUNICATIONS

Indicator	Activity
Management ensures that communication is valued and that potential blockages in communication are addressed.	*Manager:* — Pursues training in effective communication and uses these skills in daily operations; — Listens to personnel; — Requests feedback from personnel on a regular basis on how they think communication can be improved. *Personnel:* — Listen to managers and provide suggestions on how to improve communication.
Management explains the context for issues and decisions when possible.	*Manager:* — Holds meetings with personnel to announce major decisions, explains impact to personnel and includes a question and answer session at the end of the meeting to address concerns of personnel. *Personnel:* — Listen to managers and participate constructively in the question and answer session.
Management visits personnel at their work locations and conducts open forum meetings at which personnel can ask questions.	*Manager:* — Conducts walkthroughs of work areas to interact with personnel; — Promotes an environment in which personnel feel free to ask questions; — Conducts meetings that include a question and answer session.
Management welcomes personnel input and takes action or explains why no action is taken.	*Manager:* — Supports personnel providing recommendations and suggestions through the following: • Implementation of the personnel suggestion programme; • An open door policy (manager is willing to meet individuals to discuss important issues). — Has an established process to give feedback to personnel regarding their recommendations and let them know how those recommendations were addressed.

TABLE II–23. NUCLEAR SECURITY CULTURE INDICATORS: EFFECTIVE COMMUNICATIONS (cont.)

Indicator	Activity
Management keeps personnel informed of high level policy and facility or activity changes.	*Manager:* — Establishes regular (e.g. weekly) meetings with key personnel to inform them of any high level policy and facility or activity changes, and reports on status of operations; — Has key personnel disseminate information to other personnel; — Disseminates information on high level policy and facility or activity changes through email messages, newsletter articles and personnel meetings. *Personnel:* — Take an interest in high level policy and note how changes to it and to the facility or activity impact their day to day work.
Personnel are comfortable raising and discussing questions or concerns, because good and bad news are both valued and shared.	*Manager:* — Creates an environment that welcomes personnel raising questions and concerns to continuously improve nuclear security; — Implements personnel suggestion programme and provides feedback to personnel on their suggestions; — Does not necessarily act punitively when bad news is delivered but instead works to correct the issue. *Personnel:* — Actively report accomplishments as well as issues and concerns to managers to keep them apprised of current status; — Work with managers to resolve issues and concerns.

TABLE II–23. NUCLEAR SECURITY CULTURE INDICATORS: EFFECTIVE COMMUNICATIONS (cont.)

Indicator	Activity
Policies are in place that reinforce personnel's right and responsibility to raise security issues through available means, including avenues outside their chain of command.	*Manager:* — Establishes a list of personnel throughout the facility or activity who can be contacted with security issues so that personnel can be comfortable reporting a problem even if it is outside their chain of command. *Competent authority:* — Establishes a phone number and email address for personnel to report to the regulatory body (a) security events that they are not comfortable reporting within their facility or activity or (b) that they have not received feedback from managers regarding their nuclear security concerns. *Personnel:* — First work within their chain of command to report nuclear security concerns and understand other options to pursue if they do not receive feedback within a realistic time frame.
Management communicates their vision of the status of security often, consistently and in a variety of ways.	*Manager:* — Communicates security status to personnel through: • Informational meetings; • Email messages, as appropriate; • Facility or activity newsletter articles, as appropriate. *Personnel:* — Attend meetings, read security status updates and ask managers questions to clarify status.

TABLE II–23. NUCLEAR SECURITY CULTURE INDICATORS: EFFECTIVE COMMUNICATIONS (cont.)

Indicator	Activity
Clear, unambiguous and documented definitions of the responsibilities of personnel have been communicated through established channels.	*Manager:* — Works with human resources personnel to have the position descriptions noting responsibilities documented and disseminated to personnel in those positions; — Posts the position descriptions on the facility or activity web site so personnel can have easy access. *Personnel:* — Maintain a copy of their position description and refer back to it when necessary.
The security significance of various rules and procedures is clearly communicated and adequately explained to personnel.	*Security personnel:* — Conduct informal and formal meetings, to include question and answer sessions, with personnel to discuss why certain security rules and procedures are required; — Welcome personnel to meet with them one on one to clarify the significance of security rules and procedures. *Personnel:* — Request clarification from security personnel if the significance of certain nuclear security rules and procedures is not clear.
All are aware of a policy of clear and unhindered communications, both upward and downward, within the facility or activity.	*Manager:* — Issues a statement that supports open communication, welcoming personnel to meet to discuss issues; — Meets with personnel in a timely manner when personnel request a meeting.

TABLE II–23. NUCLEAR SECURITY CULTURE INDICATORS: EFFECTIVE COMMUNICATIONS (cont.)

Indicator	Activity
The system of communication is regularly tested to check that information from management is being both received and understood by personnel at all levels.	*Manager:* — Conducts walkthroughs and asks personnel what they have been hearing about a certain topic; — Conducts self-assessments in the area of communication; — Notes behaviour by or communication from personnel that shows there is a miscommunication and works to address the issue. *Personnel:* — Request clarification from managers when they do not understand communications.
Security related communications are consistent with the confidentiality policy.	*Security personnel:* — Promote awareness of the confidentiality policy through posters, email, procedures posted on the intranet, and/or discussions in formal and informal meetings; — Discuss with personnel, in a general manner, communications that did not comply with the confidentiality policy so that personnel can improve compliance. *Personnel:* — Reference the confidentiality policy before sending security related communications to ensure compliance; — Request clarification of confidentiality policy from security personnel if they do not understand requirements.

TABLE II–23. NUCLEAR SECURITY CULTURE INDICATORS: EFFECTIVE COMMUNICATIONS (cont.)

Indicator	Activity
Measures are taken in the facility or activity to avoid groupthink and encourage sharing of opposing views.	*Manager:* — Creates an environment in which personnel feel free to share their ideas; — Structures project teams to have fewer than ten members and include members with different backgrounds and skill sets; — Holds a long discussion session before any judgement of suggestions proposed by the project team is made; — Invites project team to come up with two options and justify each; — Invites a designated person to the session to ask challenging questions to help vet the two options; — Invites experts external to the team to discuss aspects at various phases of the project. *Personnel:* — Openly share their ideas and listen openly to ideas from other personnel.
Processes are in place to ensure that the experience of senior personnel is shared with new and junior personnel at the facility or activity.	*Manager:* — Establishes a mentoring programme and encourages both mentors and mentees to participate; — Establishes a specific day on which junior personnel can observe senior personnel in their daily routine; — Establishes regular (e.g. monthly) informal sessions at which senior personnel share experience on a specific topic; — Creates an environment in which junior personnel are encouraged to seek out advice from senior personnel and senior personnel share their experience with junior personnel. *Personnel:* — Seek out opportunities to mentor and to be a mentee; — Seek advice and input on specific efforts from senior personnel.

TABLE II–24. NUCLEAR SECURITY CULTURE INDICATORS: IMPROVING PERFORMANCE

Indicator	Activity
Personnel at all levels are encouraged to report problems and make suggestions for improving the performance of the nuclear security system.	*Manager:* — Supports implementation of personnel suggestion programme and encourages personnel to make suggestions to improve nuclear security; — Creates and maintains an environment in which personnel feel comfortable reporting problems; — Provides feedback to personnel on suggestions to improve nuclear security and reports problems and actions taken or to be taken. *Personnel:* — Provide suggestions on how to improve nuclear security and the nuclear security culture; — Report problems and encourage their peers to do the same.
The causes of security events and adverse trends are identified and corrected.	*Manager:* — Supports implementation of an event analysis system that tracks root causes and indicates trends; — Oversees development of any corrective action plan and tracks progress; — After ensuring sensitive data are not compromised, disseminates security event information to discourage similar events from occurring again. *Personnel:* — Assist in implementation of event analysis and corrective action plan efforts; — Pay attention to information on past events to prevent similar security events in the future.
Analysis and follow-up of events or unusual occurrences consider not just the actual but also the potential consequences arising from each incident.	*Manager:* — Oversees the implementation of incident analysis and holds discussions with key personnel to determine what other consequences could have occurred and determine if additional measures can be incorporated into the nuclear security system to avoid similar events in the future.

TABLE II–24. NUCLEAR SECURITY CULTURE INDICATORS: IMPROVING PERFORMANCE (cont.)

Indicator	Activity
When an error or event occurs, the question asked is 'What went wrong?' not 'Who was wrong?', with the focus on improvement, not blame.	*Manager:* — Discusses problems with personnel with the intention of correcting the problem, not establishing blame. *Personnel:* — Immediately report errors so that they can be addressed quickly and not cause other problems.
A process exists for personnel to raise nuclear security concerns directly with immediate management, senior management and the competent authority.	*Manager:* — Implements a personnel suggestion programme under which personnel can submit their concerns with an option to do so anonymously; — Encourages personnel to report nuclear security concerns within their immediate chain of command and within the facility or activity management chain, but also informs them that there is a process to report concerns to the competent authority. *Personnel:* — Report concerns first within their immediate chain of command and hold managers accountable for responding to their concerns; — Know the process of raising concerns with the competent authority.
Relevant security indicators are communicated to personnel.	*Security personnel:* — Hold formal and informal meetings with personnel to relay information on security indicators; — Display posters that highlight certain security indicators; — Issue reference documents such as booklets that provide information on certain security indicators. *Personnel:* — Attend the meetings, view the posters and read the reference documents; — Request clarification of security indicators when they do not understand the information being provided.

TABLE II–24. NUCLEAR SECURITY CULTURE INDICATORS: IMPROVING PERFORMANCE (cont.)

Indicator	Activity
Senior management shows that the professional capabilities, values and experience of personnel are the facility or activity's most valuable strategic asset for security.	*Manager:* — Considers personnel an important part of the facility or activity and gives attention to satisfying their needs, not just achieving technical efficiency; — Supports personnel participation in a mentoring programme; — Requests senior personnel to give informal presentations on certain topics; — Recognizes the achievements of personnel; — Provides feedback on ideas, suggestions and concerns.
Management exhibits a strong commitment to establishing a 'learning facility or activity' that values learning from internal and external sources and commits to improving security performance as a result of this learning.	*Manager:* — Supports the establishment and maintenance of a nuclear security library (hard copy, electronic version or both) that consists of an international collection of articles, presentations, regulations and books on nuclear security; — Encourages personnel to spend time reading reference material and reviewing whether ideas can be applied to the nuclear security system of the facility or activity; — Encourages personnel to attend international and national good practice exchanges and report back with any recommendations on application to the facility or activity; — Supports interaction between disciplines and departments to learn from within the facility or activity; — Supports personnel attending nuclear security training sessions and classes, and then reporting back with any recommendations of application to the facility or activity. *Personnel:* — Recommend resources for the facility or activity library; read resources; and participate in good practice exchanges, workshops, training courses and classes; — Make recommendations to managers on how to use what was learned to improve nuclear security performance.

TABLE II–24. NUCLEAR SECURITY CULTURE INDICATORS: IMPROVING PERFORMANCE (cont.)

Indicator	Activity
Management frequently inspects work to ensure that procedures are being used and followed in accordance with expectations.	*Manager:* — Conducts walkthroughs to observe personnel performance and adherence to procedures; — Discusses with personnel the expectation that all nuclear security procedures be followed without exception. *Personnel:* — Follow all procedures and report to managers any modifications that need to be made to procedures.
Management provides continual and extensive follow-through on actions involving security related human performance.	*Manager:* — Provides feedback to personnel on any suggestions submitted to enhance nuclear security performance and on any concerns raised in a timely manner, and continues to give feedback until suggestion or concern is closed out; — Works with security personnel to analyse how new security requirements could impact human performance; — Works with security personnel to conduct performance testing and self-assessments of human performance as it relates to nuclear security effectiveness. *Personnel:* — Hold managers responsible for providing feedback on nuclear security improvement recommendations and addressing any nuclear security concern that was raised.
Senior management ensures that the analysis of events derives relevant information that can be used to improve security performance.	*Manager:* — Reviews with security personnel the information derived from the security event analysis programme and how it is being used to improve nuclear security performance; — Seeks input from security personnel on how the process can be improved.

TABLE II–24. NUCLEAR SECURITY CULTURE INDICATORS: IMPROVING PERFORMANCE (cont.)

Indicator	Activity
Management and relevant personnel are aware of best practices pertaining to national and international security.	*Manager:* — Supports the establishment and maintenance of a nuclear security library (hard copy, electronic version or both) that, among other resources, contains nuclear security good practices; — Encourages personnel to spend time studying international and national nuclear security good practices; — Encourages personnel to attend international and national good practice exchanges. *Personnel:* — Recommend resources for the facility or activity's library, read resources and participate in good practice exchanges; — Make recommendations to managers on how to use what was learned to improve nuclear security performance.
If deviations from a procedure are needed, there is an efficient and effective means to manage them correctly.	*Manager:* — Establishes a procedure on how to handle deviations from and exceptions to specific procedures; — Trains personnel in how to manage deviations from and exceptions to procedures. *Personnel:* — Successfully complete training and understand how to handle deviations from and exceptions to specific procedures without compromising nuclear security.

TABLE II–24. NUCLEAR SECURITY CULTURE INDICATORS: IMPROVING PERFORMANCE (cont.)

Indicator	Activity
Human factor specialists and psychologists are engaged with the facility or activity.	*Manager:* — Encourages nuclear security culture coordinator to work with human factor specialists and psychologists to instil the attitudes and beliefs necessary to support continual improvement of nuclear security; — Includes human factor expert when designing nuclear security systems and upgrades to nuclear security systems; — Encourages personnel to use psychologist to discuss issues and discover methods to minimize stressors; — Uses psychologist to support trustworthiness programme and personnel assistance programme; — Creates an environment where there is no stigma or negative impact of meeting with a psychologist. *Personnel:* — Utilize human factor specialists and psychologist expertise as appropriate in projects; — Feel comfortable using the services of the psychologist within the personnel assistance programme and encourage their peers to use the services in order to minimize stressors.

TABLE II–25. NUCLEAR SECURITY CULTURE INDICATORS: MOTIVATION

Indicator	Activity
Management encourages, recognizes and rewards commendable attitudes and behaviour.	*Manager:* — Acts as a role model by displaying the behaviour he or she wants to see in personnel; — Recognizes excellent personnel behaviour through reward programmes and during performance evaluations. See paras 3.49 and 3.50 for additional ideas.
Management assists in implementing the insider threat mitigation programme by stressing the responsibility to watch for and report unusual occurrences.	*Manager:* — Shares lessons learned from other insider cases to highlight that the threat is credible; — Provides an environment in which personnel feel free to report concerns without fear of retribution; — Provides training to personnel on what constitutes abnormal behaviour and how to report it; — Encourages personnel to report unusual occurrences and abnormal behaviour. *Personnel:* — Understand that insider threats are of great concern; — Report concerns and encourage their peers to do the same; — Successfully complete training and understand how to report abnormal behaviour and other nuclear security concerns.
Reward systems recognize personnel contributions towards maintaining nuclear security.	*Manager:* — Recognizes personnel contributions towards enhancing nuclear security through reward programmes and during performance evaluations.

TABLE II–25. NUCLEAR SECURITY CULTURE INDICATORS: MOTIVATION (cont.)

Indicator	Activity
Personnel are aware of the systems of rewards and sanctions relating to nuclear security.	*Manager:* — Establishes a procedure documenting the system of rewards and sanctions relating to nuclear security; — Trains personnel on the system of rewards and sanctions; — Disseminates documents detailing the system of rewards and sanctions to all personnel; — Maintains a description of rewards and sanctions system so that it is easily accessible to personnel (e.g. posted on the facility or activity's intranet site); — Applies the system of rewards and sanctions uniformly to all personnel.
Annual performance appraisals include a section on performance and efforts relating to nuclear security.	*Manager:* — Acknowledges and documents personnel contribution to nuclear security performance during annual performance appraisals.
When applying disciplinary measures in the event of violations, the sanctions for self-reported violations are tempered to encourage the reporting of future infractions.	*Manager:* — Develops the nuclear security rewards and sanctions programme so that sanctions for violations are issued on a graded approach, with positive reinforcement provided to those who self-report; — Applies disciplinary measures as required by the authorized procedure and in the same manner for all personnel; — Promotes an environment that encourages personnel to self-report security violations. *Personnel:* — Are not afraid to self-report security violations and encourage their peers to do so as well.

TABLE II–25. NUCLEAR SECURITY CULTURE INDICATORS: MOTIVATION (cont.)

Indicator	Activity
Performance improvement processes encourage personnel to offer innovative ideas to improve security performance and find appropriate solutions.	*Manager:* — Establishes the personnel suggestion programme and encourages personnel to submit recommendations on how to improve nuclear security performance; — Provides feedback to personnel on their suggestions and informs them of any action taken; — Provides recognition to personnel if their suggestion is accepted and enhances nuclear security effectiveness. *Personnel:* — Want to submit suggestions on how to improve nuclear security performance and encourage their peers to do the same.
Individuals' expertise and special skills relevant to security are recognized, used and rewarded by the facility or activity, regardless of an individual's formal standing within the facility or activity.	*Manager:* — Encourages use of personnel with the relevant expertise and skills to most effectively support nuclear security, no matter what position the individual holds within the facility or activity; — Provides recognition of special nuclear security skills and expertise of personnel. *Personnel:* — Search for the most qualified personnel to enhance nuclear security within the facility or activity and include them in nuclear security enhancement efforts.
The principles used to reward good performance in security mirror those used to reward good performance in safety and operations.	*Manager:* — Establishes the nuclear security reward system, modelled on reward systems used in other areas of the facility or activity (e.g. safety, operations).

TABLE II–25. NUCLEAR SECURITY CULTURE INDICATORS: MOTIVATION (cont.)

Indicator	Activity
Management has taken action to make career paths in nuclear security management career enhancing.	*Manager:* — Works with the human resources and training departments to establish career paths for nuclear security positions; — Disseminates information on career paths to personnel in nuclear security positions; — Encourages those personnel to take steps (e.g. training) to develop their career and mentors them on how to enhance a nuclear security career. *Personnel:* — Understand the career paths associated with their nuclear security position and work with managers to develop their career further.
Personnel can give examples of situations where individuals who transmitted security related concerns or potential improvements were given public recognition.	*Manager:* — Establishes the personnel suggestion programme and encourages personnel to submit recommendations on how to improve nuclear security performance. — Provides feedback to personnel on their suggestions and informs them of any action taken. — Provides recognition to personnel if suggestions are accepted and enhance nuclear security effectiveness. This recognition can be an announcement in a major facility or activity forum, email or newsletter. *Personnel:* — Want to submit suggestions on how to improve nuclear security performance and encourage their peers to do the same; — Feel free to raise concerns without fear of retribution.
A security conscious attitude is one of the factors in approving a promotion to management levels.	*Manager:* — Acknowledges and documents personnel contribution to nuclear security performance on their annual performance appraisal.

CHARACTERISTICS OF PERSONNEL BEHAVIOUR

II–33. Managers and nuclear security culture coordinators are vital to eliciting the following results from personnel. To foster the desired behaviour, managers and nuclear security culture coordinators conduct themselves as role models and continually work with personnel on these indicators using the approaches and methods identified within this publication. The activities listed for personnel in the tables that follow are the expected results of a robust nuclear security culture enhancement programme.

Professional conduct

II–34. All organizations involved with nuclear security need their personnel to adhere to high standards of professionalism (see Table II–26).

Personal accountability

II–35. Accountable behaviour means that all personnel understand what they need to accomplish, by when, and what results are expected to be achieved. If they cannot execute their tasks as expected, they are encouraged to inform their manager (see Table II–27).

Adherence to procedures

II–36. It is important that procedures be followed to avoid repeating errors that have been identified and corrected. To assist personnel with adhering to procedures, it is recommended that they be clear, up to date, readily available and user friendly (see Table II–28).

Teamwork and cooperation

II–37. A strong nuclear security culture can best be achieved when there is extensive interpersonal interaction and when relationships are positive and professional (see Table II–29).

Vigilance

II–38. The effectiveness of nuclear security depends on the vigilance of personnel. Prompt identification of potential vulnerabilities permits timely and proactive corrective action (see Table II–30). *Text cont. on p.186.*

TABLE II–26. NUCLEAR SECURITY CULTURE INDICATORS: PROFESSIONAL CONDUCT

Indicator	Activity
Personnel are familiar with the facility or activity's professional code of conduct and adhere to it.	*Nuclear security culture coordinator:* — Works with manager to develop a code of conduct for facility or activity (see paras 3.52 and 3.53 and Annex IV for more information on the code of conduct); — Disseminates to personnel the code of conduct on pocket-sized cards; — Displays the code of conduct on posters in various locations around the workplace. *Manager:* — Asks personnel questions pertaining to the code and provides an example of how the personnel adhere to the code. *Personnel:* — Familiarize themselves with the code of conduct, agree to adhere to it and inform manager how they adhere to it.
Personnel take professional pride in their work.	*Manager:* — Provides timely feedback on work conducted by personnel and emphasizes the importance of their contribution to the facility or activity's nuclear security; — Recognizes contribution of personnel to the facility or activity's nuclear security. *Personnel:* — Want to impress their peers and managers by conducting their job professionally.
Personnel help each other and interact with professional courtesy and respect.	*Manager:* — Acts as a role model and treats all personnel with professional courtesy and respect; — Assists personnel in their ability to conduct their work by helping remove obstacles; — Encourages mentoring relationships; — Encourages colleagues and treats them with courtesy and respect.

TABLE II–26. NUCLEAR SECURITY CULTURE INDICATORS: PROFESSIONAL CONDUCT (cont.)

Indicator	Activity
Most personnel at all levels of the facility or activity are actively and routinely involved in enhancing security.	*Nuclear security culture coordinator:* — Works with personnel to inform them how they can personally enhance nuclear security. *Manager:* — Routinely informs personnel of the expectation that they actively and routinely work to enhance nuclear security. *Personnel:* — Make it their responsibility to follow all nuclear security procedures; — Make suggestions on how to improve nuclear security; — Report abnormal occurrences and concerns; — Self-report security events; — Successfully complete all nuclear security training; — Encourage their peers to do the same.

TABLE II–26. NUCLEAR SECURITY CULTURE INDICATORS: PROFESSIONAL CONDUCT (cont.)

Indicator	Activity
Personnel consider the security related aspects of their work valuable and important.	*Nuclear security culture coordinator:* — Continually reinforces with personnel the importance of their role and responsibility in making nuclear security effective, as well as the consequences of ineffective nuclear security and how it personally affects them, by using roundtable discussions, a code of conduct, poster campaigns, contests and videos. *Manager:* — Continually reinforces the importance of all personnel contributing to the effectiveness of nuclear security in meetings, informal discussions, one-on-one settings and performance appraisals. *Personnel:* — Understand their role and responsibility in supporting the effectiveness of nuclear security; — Understand the consequences of ineffective nuclear security to their job, their family, their country and the environment; — Believe their role in supporting nuclear security effectiveness is valued and therefore important.

TABLE II–26. NUCLEAR SECURITY CULTURE INDICATORS: PROFESSIONAL CONDUCT (cont.)

Indicator	Activity
Personnel have the qualifications, skills and knowledge necessary to effectively perform all aspects of their security related jobs and are provided an opportunity to improve those qualifications, skills and knowledge.	*Nuclear security culture coordinator:* — Works with managers and training personnel to incorporate nuclear security and the nuclear security culture training requirements into the facility or activity's training programme for personnel; — Works with training personnel to make sure that all personnel receive the required training, both initial and recurrent; — Works with training personnel to review training course evaluation forms and participant comments to determine if training needs to be revised to best meet the needs of personnel. *Manager:* — Stresses the importance of personnel successfully completing all training requirements; — Authorizes personnel to attend required training; — Encourages personnel to pursue additional training, as appropriate. *Personnel:* — Complete all required nuclear security and nuclear security culture training requirements; — Pursue opportunities for additional training and classes that would enhance their ability to conduct security related activities effectively.
Personnel are prepared to face the unknown and improvise, if necessary.	*Manager:* — Institutes a robust performance testing programme that routinely puts personnel in abnormal scenarios to hone their ability to wisely improvise if an event were to occur. *Personnel:* — Participate in all exercises, discuss results with managers and peers, and consider how reactions can be improved.

TABLE II–26. NUCLEAR SECURITY CULTURE INDICATORS: PROFESSIONAL CONDUCT (cont.)

Indicator	Activity
Security is considered a respectable and career enhancing profession for qualified personnel.	*Manager:* — Works with the human resources and training departments to establish career paths for nuclear security positions; — Disseminates information on career paths to personnel in nuclear security positions; — Encourages those personnel to take steps (e.g. training) to develop their career and mentors them on how to enhance their nuclear security career. *Personnel:* — Understand the career paths associated with their nuclear security position and work with managers to develop their career further.
Personnel notify their co-workers when those co-workers are doing something that might downgrade security, even if it is not part of their job.	*Nuclear security culture coordinator:* — Works with personnel to practice scenarios on how to best tell their colleagues they can enhance nuclear security performance. *Manager:* — Routinely informs personnel of the expectation that they actively and routinely work to enhance nuclear security. *Personnel:* — Encourage peers to do the following: • Make it their responsibility to follow all nuclear security procedures; • Make suggestions on how to improve nuclear security; • Report abnormal occurrences and concerns; • Self-report security events; • Successfully complete all nuclear security training.

TABLE II–26. NUCLEAR SECURITY CULTURE INDICATORS: PROFESSIONAL CONDUCT (cont.)

Indicator	Activity
Personnel contribute to improvements in the training programme.	*Personnel:* — Provide constructive feedback on training evaluation forms; — Provide recommendations to managers and the nuclear security culture coordinator on what types of training would enhance their ability to support nuclear security; — Hold managers accountable for making the changes to the training programme.
Security personnel participate in professional organizations and groups, both inside and outside the facility or activity.	*Nuclear security culture coordinator:* — Encourages security personnel to form a professional group associated with nuclear security within the facility or activity; — Assists in the establishment of the group (e.g. development of charter); — Assists in planning activities (e.g. bringing in outside guest speakers); — Provides security personnel with a list of additional professional organizations and groups, external to the facility, that they can join. *Manager:* — Encourages security personnel to participate in professional organizations and groups, perhaps granting time off to attend presentations or assisting with payment of fees; — Encourages security personnel to provide presentations, upon clearance and approval, to professional organizations and groups that support nuclear security. *Security personnel:* — Become members of professional groups, both inside and outside the facility or activity; — Hold positions within the professional group; — Actively participate in the professional group by giving presentations or helping to arrange guest speakers.

TABLE II–26. NUCLEAR SECURITY CULTURE INDICATORS: PROFESSIONAL CONDUCT (cont.)

Indicator	Activity
Papers are published and presentations are made by personnel on nuclear security issues.	*Nuclear security culture coordinator:* — Encourages personnel to publish papers and make presentations on nuclear security issues by providing personnel with a list of opportunities (e.g. journals, conferences, workshops); — Assists personnel with processing papers or presentations through a facility or activity review and clearance procedure; — Assists personnel with obtaining manager approval to make presentations. *Manager:* — Encourages personnel to publish papers and make presentations on nuclear security issues and announces opportunities to do so (e.g. journals, conferences, workshops) in meetings; — Takes part in the review and clearance procedure; — Grants personnel approval to publish papers or make presentations, as appropriate. *Personnel:* — Pursue opportunities to publish papers and make presentations on nuclear security issues; — Process papers or presentations through the facility or activity review and clearance procedure before submitting papers externally; — Encourage peers to publish papers and make presentations on nuclear security issues.

TABLE II–27. NUCLEAR SECURITY CULTURE INDICATORS: PERSONAL ACCOUNTABILITY

Indicator	Activity
Personnel understand how their specific tasks support nuclear security.	*Nuclear security culture coordinator:* — Works with managers and human resources personnel to document the specific nuclear security tasks that each position is responsible for and disseminates to personnel; — Continually reinforces with personnel the importance of their role and responsibility in making nuclear security effective by using roundtable discussions, a code of conduct, poster campaigns, contests and videos. *Manager:* — Continually reinforces the importance of all personnel contributing to the effectiveness of nuclear security in meetings, informal discussions, one-on-one settings and performance appraisals; — Works with the nuclear security culture coordinator and human resources personnel to document the specific nuclear security tasks that each position is responsible for. *Personnel:* — Have a document they can refer to for specific nuclear security tasks and understand how their position supports nuclear security; — Request clarification from the nuclear security culture coordinator or manager if they do not understand their specific nuclear security tasks.

TABLE II–27. NUCLEAR SECURITY CULTURE INDICATORS: PERSONAL ACCOUNTABILITY (cont.)

Indicator	Activity
Commitments are achieved or prior notification of their non-attainment is given to management.	*Manager:* — Creates an environment that encourages personnel to report on the status of commitments, whether positive or negative; — Does not necessarily act punitively when bad news is delivered but instead works to correct the issue. *Personnel:* — Actively report accomplishments as well as issues and concerns to managers to keep them apprised of the current status of commitments; — Work with managers to resolve issues and concerns.
Behaviour that enhances security culture is reinforced by peers.	*Nuclear security culture coordinator:* — Acts as a nuclear security role model and reinforces desired behaviour. *Manager:* — Acts as a nuclear security role model and reinforces desired behaviour. *Personnel:* — Make it their responsibility to enhance nuclear security; — Follow all nuclear security procedures; — Make suggestions on how to improve nuclear security; — Report abnormal occurrences and concerns; — Self-report security events; — Successfully complete all nuclear security training; — Encourage their peers to do the same.

TABLE II–27. NUCLEAR SECURITY CULTURE INDICATORS: PERSONAL ACCOUNTABILITY (cont.)

Indicator	Activity
Personnel take responsibility to resolve issues.	*Nuclear security culture coordinator:* — Informs personnel that security is their responsibility through the following: • Initial training; • Continual security and technical training; • Discussions with the nuclear security culture coordinator and managers; • Bulletins, newsletters, computer alerts, posters and videos. *Personnel:* — Actively take responsibility for security through the following: • Protecting their access badges and passes; • Questioning individuals not showing their access authorization; • Following security procedures; • Proposing enhancements to nuclear security; • Respectfully following directions of guard or response force; • Reporting abnormal behaviour and events; • Self-reporting security violations.

TABLE II–27. NUCLEAR SECURITY CULTURE INDICATORS: PERSONAL ACCOUNTABILITY (cont.)

Indicator	Activity
Personnel consider themselves responsible for security at the facility or activity.	*Nuclear security culture coordinator:* — Informs personnel that security is their responsibility through the following: • Initial training; • Continual security and technical training; • Discussions with the nuclear security culture coordinator and managers; • Bulletins, newsletters, computer alerts, posters and videos. *Personnel:* — Actively take responsibility for security through the following: • Protecting their access badges and passes; • Questioning individuals not showing their access authorization; • Following security procedures; • Proposing enhancements to nuclear security; • Respectfully following directions of guard or response force; • Reporting abnormal behaviour and events; • Self-reporting security violations.

TABLE II–27. NUCLEAR SECURITY CULTURE INDICATORS: PERSONAL ACCOUNTABILITY (cont.)

Indicator	Activity
Personal accountability is clearly defined in appropriate policies and procedures.	*Nuclear security culture coordinator:* — Works with managers and human resources personnel to include personal accountability for nuclear security in job descriptions; — Works with managers and appropriate personnel to include personal accountability for nuclear security in appropriate policies and procedures. *Personnel:* — Understand how they are accountable for nuclear security and have easy access to the associated policies and procedures; — Request clarification from the nuclear security culture coordinator, managers or human resources personnel if policies and procedures regarding accountability for nuclear security are not understood.
Procedures and processes ensure clear single point accountability before execution.	*Manager:* — Appoints one position that has accountability for a certain procedure or process before it is implemented; — Maintains information on which position has accountability for which procedures and processes so that personnel can easily determine the point of contact. *Personnel:* — Know where to find the list of positions that have accountability for procedures and processes; — Contact those positions when there is a question regarding a certain procedure or process.

TABLE II–28. NUCLEAR SECURITY CULTURE INDICATORS: ADHERENCE TO PROCEDURES

Indicator	Activity
Personnel adhere to procedures and other protocols, such as information controls.	*Nuclear security culture coordinator:* — Works to continually remind personnel of the importance of adhering to all nuclear security procedures and protocols. *Manager:* — Continually reinforces the expectation that personnel will adhere to all nuclear security procedures and protocols; — Maintains copies of all nuclear security procedures and protocols in a location easily accessible by personnel so that they can refer to them as necessary. *Personnel:* — Understand that adherence to procedures and other nuclear security protocols is vital to maintaining the effectiveness of nuclear security, which in turn is vital to national security; — Adhere to nuclear security procedures and protocols and encourage peers to do the same.

TABLE II–28. NUCLEAR SECURITY CULTURE INDICATORS: ADHERENCE TO PROCEDURES (cont.)

Indicator	Activity
Visible sanctions are in place and applied to encourage personnel to follow procedures.	*Manager:* — Establishes a procedure documenting the system of rewards and sanctions relating to nuclear security; — Associates sanctions with violations using a graded approach; — Gives positive reinforcement to those who self-report security violations; — Encourages personnel to self-report; — Trains personnel in the system of rewards and sanctions; — Disseminates documents detailing the system of rewards and sanctions to all personnel; — Maintains a description of the rewards and sanctions system so it is easily accessible to personnel (e.g. posted on facility or activity's intranet site); — Applies the system of rewards and sanctions uniformly to all personnel. *Personnel:* — Understand the system of rewards and sanctions relating to nuclear security; — Know where to find documentation on the system of rewards and sanctions; — Adhere to nuclear security procedures to avoid sanctions; — Self-report security violations; — Encourage peers to do the same.

TABLE II–28. NUCLEAR SECURITY CULTURE INDICATORS: ADHERENCE TO PROCEDURES (cont.)

Indicator	Activity
Personnel understand the potential consequences of non-compliance with the established rules for the facility or activity's safety and security.	*Manager:* — Establishes a procedure documenting the system of rewards and sanctions relating to nuclear security; — Associates sanctions with violations using a graded approach; — Gives positive reinforcement to those who self-report security violations; — Encourages personnel to self-report; — Trains personnel on the system of rewards and sanctions; — Disseminates documents detailing the system of rewards and sanctions to all personnel; — Maintains a description of the rewards and sanctions system so it is easily accessible to personnel (e.g. posted on facility or activity's intranet site); — Applies the system of rewards and sanctions uniformly to all personnel. *Personnel:* — Understand the system of rewards and sanctions relating to nuclear security and the consequences of non-compliance with the established security and safety rules; — Know where to find documentation on the consequences of non-compliance; — Adhere to nuclear security procedures to avoid sanctions; — Self-report security violations; — Encourage peers to do the same.

TABLE II–28. NUCLEAR SECURITY CULTURE INDICATORS: ADHERENCE TO PROCEDURES (cont.)

Indicator	Activity
The facility or activity's instructions on security are easy to follow because they are clear, up to date, readily available and user friendly.	*Nuclear security culture coordinator:* — Works with the appropriate personnel to review nuclear security instructions and modify them, as necessary, to be clear, up to date and user friendly; — Works with the appropriate personnel to maintain current instructions on the facility or activity's intranet site or other easily accessible location for personnel to readily reference. *Personnel:* — Provide recommendations on how to improve nuclear security instructions so they are clear, up to date and user friendly; — Know where to access current versions of instructions to use as a reference; — Know whom to contact to suggest improvements to a nuclear security instruction.
There is a well established practice of reminding personnel about the importance of following procedures.	*Nuclear security culture coordinator:* — Implements a continuous awareness campaign on the importance of following nuclear security procedures through informal and formal discussions, exhibits, posters, videos, contests and newsletter articles. *Manager:* — Stresses the importance of following procedures using appropriate means such as emails, meeting discussions and poster campaigns. *Personnel:* — Understand the importance of following procedures; — Follow procedures without deviations or exceptions; — Encourage their peers to do the same.

TABLE II–28. NUCLEAR SECURITY CULTURE INDICATORS: ADHERENCE TO PROCEDURES (cont.)

Indicator	Activity
Personnel who discover discrepancies in the implementation of security procedures promptly report them to management.	*Nuclear security culture coordinator:* — Discusses with personnel the importance of promptly reporting discrepancies in the implementation of security procedures. *Manager:* — Maintains an environment that is supportive of reporting nuclear security issues and works with personnel to fix the issues. *Personnel:* — Report nuclear security discrepancies promptly to managers; — Work with managers to fix the issue; — Encourage peers to do the same.
Personnel show reasonable trust in and acceptance of security procedures.	*Nuclear security culture coordinator:* — Informs personnel how security procedures are developed (e.g. by a group of experienced experts using good practices as a foundation) so it is understood that they were developed considering all aspects of the facility or activity and that there are good reasons for the facility or activity to implement such procedures. *Personnel:* — Trust and accept the nuclear security procedures; — Request clarification if a procedure or part of a procedure is not understood.
Procedures are immediately available at all workstations.	*Nuclear security culture coordinator:* — Works with the appropriate personnel to maintain current instructions on the facility or activity's intranet site or other easily accessible location for personnel to readily reference at their workstation. *Personnel:* — Know where to access current versions of instructions to use as a reference at their workstation.

TABLE II–28. NUCLEAR SECURITY CULTURE INDICATORS: ADHERENCE TO PROCEDURES (cont.)

Indicator	Activity
Personnel avoid shortcuts in implementing security procedures.	*Nuclear security culture coordinator:* — Informs personnel how nuclear security procedures are developed (e.g. through group of experienced experts using good practices as a foundation) so it is understood that they were developed considering all aspects of the facility or activity and that there are good reasons for the facility or activity to implement all steps in the procedures. *Personnel:* — Trust and accept the nuclear security procedures; — Request clarification if a procedure or part of a procedure is not understood; — Follow the established process to recommend changes to nuclear security procedures; — Completely follow the security procedure without taking shortcuts; — Encourage peers to do the same.

TABLE II–29. NUCLEAR SECURITY CULTURE INDICATORS: TEAMWORK AND COOPERATION

Indicator	Activity
Teams are recognized for their contribution to nuclear security.	*Manager:* — Recognizes performance of teams through recognition letters, certificates of appreciation and publicized awards (see paras 3.49 and 3.50 for additional information).
Personnel interact with openness and trust and routinely support each other.	*Nuclear security culture coordinator:* — Hosts social and team-building events to help to create an open environment. *Manager:* — Communicates honestly, and actions prove it; — Is open to ideas from personnel; — When communicating, knows what to share and what not to share (e.g. personal information); — Treats all personnel equally; — Is compassionate and helps personnel to balance multiple priorities; — Appreciates the work done by personnel; — Makes it easier for personnel to successfully complete their work by removing obstacles; — Uses personnel for various tasks according to their strengths and weaknesses; — Listens to personnel and their concerns and suggestions. *Personnel:* — Are open to working with other personnel in the facility or activity and look forward to receiving different views and new ideas to incorporate into day to day operations; — Welcome new personnel into their work routine and seek mentoring opportunities.

TABLE II–29. NUCLEAR SECURITY CULTURE INDICATORS: TEAMWORK AND COOPERATION (cont.)

Indicator	Activity
Problems are solved by multilevel and multidisciplinary teams.	*Manager:* — Selects team members with the right skills and qualities from different departments. — Supports interaction between disciplines and departments to learn from within the facility or activity. — Holds brainstorming sessions with personnel to generate ideas and alternate solutions. During this brainstorming session, the manager does the following: • Concentrates on the one issue to resolve; • Entertains all ideas; • Defers judgement until the group has agreed on the best ideas. *Personnel:* — Actively participate in brainstorming sessions and offer managers constructive input and opinions to assist with the problem solving process; — Actively participate in multilevel and multidisciplinary teams to solve problems.
Teamwork and cooperation are encouraged at all levels and across bureaucratic boundaries.	*Manager:* — Encourages personnel to act as a team. — Selects team members with the right skills and qualities from different departments. — Supports interaction between disciplines and departments to learn from within the facility or activity. — Holds brainstorming sessions with personnel to generate ideas and alternate solutions. During this brainstorming session, the manager does the following: • Concentrates on the one issue to resolve; • Entertains all ideas; • Defers judgement until the group has agreed on the best ideas. *Personnel:* — Actively participate in teams; — Recommend peers for specific teams.

TABLE II–29. NUCLEAR SECURITY CULTURE INDICATORS: TEAMWORK AND COOPERATION (cont.)

Indicator	Activity
Team members support one another through awareness of each other's actions and by supplying constructive feedback when necessary.	*Personnel:* — Interact with team members and acknowledge their efforts; — Provide constructive feedback when reviewing commitments and team deliverables.
Professional groups appreciate each other's competence and roles when interacting on security issues.	*Personnel:* — Maintain professional relationships with colleagues.
There are opportunities to exchange security relevant information within and between units.	*Manager:* — Supports interaction between disciplines and departments to learn from within the facility or activity.
Team members are periodically reassigned to improve communications between teams.	*Manager:* — May reassign personnel so they can gain different experience and input from other team members.
Cross-training among different professional areas and groups is conducted to facilitate teamwork and cooperation.	*Manager:* — Works with the human resources department to establish an effective cross-training programme that promotes teamwork and cooperation.

TABLE II–29. NUCLEAR SECURITY CULTURE INDICATORS: TEAMWORK AND COOPERATION (cont.)

Indicator	Activity
There are few signs of frustration, resentment or other symptoms of poor morale within the facility or activity that might impede cooperation among different units, particularly those in charge of safety and security.	*Manager:* — Considers personnel to be an important part of the facility or activity and pays attention to satisfying their professional needs, not just achieving technical efficiency; — Supports interaction between disciplines and departments to learn from within the facility or activity.
Management and personnel promote and implement measures to ensure cross-pollination of ideas and measures to maintain security cooperation between facility or activity units.	*Manager:* — Selects team members with the right skills and qualities from different departments; — Supports interaction between disciplines and departments to cooperate on nuclear security. *Personnel:* — Recommend peers to serve on teams and interact with other disciplines and departments; — Volunteer to serve on teams and interact with other disciplines and departments.
Personnel use a single technical vocabulary to achieve easy interactions.	*Nuclear security culture coordinator:* — Works with personnel to streamline terminology throughout the facility or activity. *Manager:* — Reinforces need to streamline terminology throughout the facility or activity at meetings. *Personnel:* — Work with different disciplines and departments throughout the facility or activity to streamline terminology to avoid miscommunication.

TABLE II–30. NUCLEAR SECURITY CULTURE INDICATORS: VIGILANCE

Indicator	Activity
Personnel notice and question unusual indications and occurrences and report them to management as soon as possible, using the established processes.	*Manager:* — Works with the training department to provide training on how to detect abnormal behaviour, why it is important to report abnormal behaviour, how to make such reports, to whom they are to be made and in what time period; — Works to provide assistance to personnel who exhibit abnormal behaviour. *Personnel:* — Successfully complete training and know how to report abnormal behaviour; — Report any abnormal behaviour through the established process.
Personnel are attentive to detail.	*Manager:* — Reinforces message that neglect or overlooking details can cause greater problems over time and emphasizes that personnel are to perform all their nuclear security responsibilities thoroughly. This saves time and money in the long run, and decreases the probability of creating nuclear security vulnerabilities. *Personnel:* — Are vigilant when conducting their nuclear security responsibilities and understand the importance of staying vigilant and paying attention to detail.

TABLE II–30. NUCLEAR SECURITY CULTURE INDICATORS: VIGILANCE (cont.)

Indicator	Activity
Personnel seek guidance when unsure of the security significance of unusual events, observations or occurrences.	*Nuclear security culture coordinator:* — Offers assistance with providing nuclear security guidance. *Manager:* — Creates and maintains an environment in which personnel feel free to seek such guidance and understands the importance of addressing security vulnerabilities. *Personnel:* — Contact the nuclear security culture coordinator, manager or security department and discuss concerns to clarify if they are reportable.
An appropriate questioning attitude is encouraged throughout the facility or activity.	*Nuclear security culture coordinator:* — Encourages an appropriate questioning attitude of personnel through discussions, posters and videos. *Manager:* — Encourages personnel to report concerns and question abnormal behaviour; — Acts on the concerns and provides personnel feedback on how they were addressed. *Personnel:* — Report immediately any nuclear security concerns and encourage peers to do the same.

TABLE II–30. NUCLEAR SECURITY CULTURE INDICATORS: VIGILANCE (cont.)

Indicator	Activity
Personnel believe that a credible threat exists.	*Nuclear security culture coordinator:* — Works with the training department to incorporate information on credible threats into the facility or activity's training programme; — Implements an awareness campaign within the facility or activity to stress that a credible threat exists through formal and informal discussions, poster campaigns, presentations, training sessions, videos and discussions of actual cases. *Personnel:* — Successfully complete training; — Discuss the existence of a credible threat with the nuclear security culture coordinator and peers; — Understand and accept that there is a credible threat to nuclear and other radioactive material, sensitive information, associated facilities and associated activities.
Personnel are trained in observation skills to identify irregularities in security procedure implementation.	*Nuclear security culture coordinator:* — Works with the training department to develop and implement training in observation skills for managers and self-assessment team members. *Manager:* — Successfully completes training; — Is assigned the responsibility of observing personnel to confirm compliance in procedure implementation. *Self-assessment team members:* — Successfully complete training; — Are assigned the responsibility of using observation skills to support self-assessment of procedure compliance.

TABLE II–30. NUCLEAR SECURITY CULTURE INDICATORS: VIGILANCE (cont.)

Indicator	Activity
Personnel are aware of potential insider threats and their consequences.	*Nuclear security culture coordinator:* — Works with the training department to develop and implement training in mitigating insider threats; — Implements an awareness campaign within the facility or activity, focusing on how to mitigate insider threats through formal and informal discussions, poster campaigns, presentations, training sessions, videos and discussions of actual cases. *Personnel:* — Successfully complete training; — Discuss insider threats with the nuclear security culture coordinator and with peers; — Understand and accept there is an insider threat to nuclear and other radioactive material, sensitive information, associated facilities and associated activities; — Take responsibility to mitigate insider threats.
Personnel avoid complacency and can recognize its manifestations.	*Nuclear security culture coordinator:* — Implements an awareness campaign within the facility or activity, focusing on how to avoid complacency, through formal and informal discussions, poster campaigns, presentations, training sessions, videos and discussions of actual cases. *Personnel:* — Understand the importance of remaining vigilant and motivate their peers to avoid complacency.
Personnel accept and understand the requirement for a watchful and alert attitude at all times.	*Nuclear security culture coordinator:* — Implements an awareness campaign within the facility or activity, focusing on the need to stay alert, through formal and informal discussions, poster campaigns, presentations, training sessions, videos and discussions of actual cases. *Personnel:* — Understand the importance of remaining vigilant and motivate peers to stay alert at all times.

TABLE II–30. NUCLEAR SECURITY CULTURE INDICATORS: VIGILANCE (cont.)

Indicator	Activity
Personnel feel safe from reprisal when reporting errors and incidents.	*Manager:* — Provides an environment in which personnel feel free to report errors and concerns without fear of reprisal; — Encourages personnel to report errors and concerns. *Personnel:* — Report errors and concerns and encourage peers to do the same.
A policy prohibiting harassment and retaliation for raising nuclear security concerns is enforced.	*Manager and nuclear security culture coordinator:* — Work with human resources personnel to develop and distribute a policy prohibiting harassment and retaliation for raising nuclear security concerns; — Work with human resources personnel to strictly enforce the policy; — Work with training personnel to develop and implement training on the policy for all personnel; — Implement an awareness campaign through small group sessions and posters explaining the policy and that it will be strictly enforced. *Personnel:* — Do not harass or retaliate against other personnel who raise nuclear security concerns.

TABLE II–30. NUCLEAR SECURITY CULTURE INDICATORS: VIGILANCE (cont.)

Indicator	Activity
Personnel make decisions and take actions consistent with their responsibilities if a decision must be made before managers arrive on scene.	*Nuclear security culture coordinator:* — Works with managers and human resources personnel to document the specific nuclear security tasks that each position is responsible for and disseminates that documentation to personnel; — Works with training personnel to conduct drills running personnel through various scenarios to reinforce what decisions they are authorized to make. *Manager:* — Works with the nuclear security culture coordinator and human resources personnel to document specific nuclear security tasks that each position is responsible for; — Authorizes personnel to take actions consistent with their documented responsibilities in case of a nuclear security event during which the manager is not available. *Personnel:* — Have a document that they can refer to for specific nuclear security tasks and understand how their position supports nuclear security; — Request clarification from the nuclear security culture coordinator or manager if they do not understand their specific nuclear security responsibilities; — Participate in training and drills to better understand their responsibilities during a nuclear security event.

TABLE II–30. NUCLEAR SECURITY CULTURE INDICATORS: VIGILANCE (cont.)

Indicator	Activity
Personnel notify management of any incidents or possible incidents involving a compromise of computer security or a breach of information security.	*Nuclear security culture coordinator:* — Discusses with personnel the importance of promptly reporting any incidents or possible incidents involving a compromise of computer security or a breach of information security. *Manager:* — Maintains an environment that is supportive of reporting nuclear security issues and works with personnel to fix the issue. *Personnel:* — Report any incident or possible incident involving a compromise of computer security or a breach of nuclear security; — Work with managers to fix the issue; — Encourage peers to do the same.

REFERENCES TO ANNEX II

[II–1] INTERNATIONAL ATOMIC ENERGY AGENCY, Nuclear Security Culture, IAEA Nuclear Security Series No. 7, IAEA, Vienna (2008).

[II–2] INTERNATIONAL ATOMIC ENERGY AGENCY, Self-assessment of Nuclear Security Culture in Facilities and Activities, IAEA Nuclear Security Series No. 28-T, IAEA, Vienna (2017).

[II–3] INTERNATIONAL ATOMIC ENERGY AGENCY, Preventive and Protective Measures against Insider Threats, IAEA Nuclear Security Series No. 8-G (Rev. 1), IAEA, Vienna (2020).

[II–4] INTERNATIONAL ATOMIC ENERGY AGENCY, Objective and Essential Elements of a State's Nuclear Security Regime, IAEA Nuclear Security Series No. 20, IAEA, Vienna (2013).

[II–5] INTERNATIONAL ATOMIC ENERGY AGENCY, Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5), IAEA Nuclear Security Series No. 13, IAEA, Vienna (2011).

Annex III

SUGGESTED TOPICS TO INCLUDE IN MANAGEMENT TRAINING

III–1. Nuclear security culture, for the most part, is driven by management. It is important for management personnel to recognize this and act as positive role models within a nuclear security culture enhancement programme. Training courses in management skills may be provided to those responsible for overseeing nuclear security so that management personnel are equipped with tools to enhance nuclear security and credibly deliver the message that nuclear security is important. The positive actions that managers take will ultimately support continual improvement in nuclear security and provide a positive work environment, which might help minimize disgruntlement and potential insider motivation.

III–2. Nuclear security culture coordinators are encouraged to include in the action plan an effort to implement workshops specifically designed for managers. These workshops may provide information on the following topics:

- The regulatory basis for nuclear security culture;
- International improvement programmes, including the IAEA nuclear security culture model [III–1];
- Self-assessment of nuclear security culture [III–2];
- Threats to nuclear and other radioactive material and associated facilities and activities, as appropriate;
- The importance of human factors and their impact on all elements of nuclear security (e.g. physical protection, material accounting and control, sensitive information protection, transport security, computer security, role of guard or response force, contingency plans).

III–3. These are all important topics relating to nuclear security. However, the primary goal of any workshop for managers is to provide the skills and knowledge they need to improve the nuclear security culture in their facility or activity. During manager workshops, skills such as motivation, communication, observation, time management, conflict resolution and performance evaluation may be analysed, and good practices relating to these topics may be discussed.

Commitment

III–4. Success in establishing a strong nuclear security culture will depend to a large degree on the commitment of management to implement effective nuclear security and the enhancement programme. Managers need to communicate their priorities through policy and procedures; most importantly, however, they need to communicate their priorities through their actions, decisions and behaviour. Managers who are visibly committed to nuclear security through their behaviour will have a positive impact on their personnel.

Motivation

III–5. In general, personnel want to perform well. A manager's primary role in this context is to motivate personnel so that they feel valued and contribute to their overall facility or activity. Managers need to recognize and reward personnel for commendable performance. In doing so, managers create a positive work environment in which productivity is often increased and the potential for personnel becoming disgruntled is decreased. Managers who provide an interesting work environment and make themselves available to mentor and answer questions are more likely to see a positive workplace in which personnel take responsibility for their actions and are generally willing to contribute to the overall improvement of nuclear security. The following suggested motivational checklist may be used by managers within an enhancement programme:

— Be visible throughout the facility or activity and perform regular (e.g. weekly) walkthroughs during all shifts.
— Learn subordinates' names and spend time building strong working relationships.
— Ask for suggestions about how to improve work processes, work environment and training and about what additional activities could be implemented to improve the effectiveness of nuclear security.
— Acknowledge individual and group contributions, celebrate successes and say thank you when it is deserved.
— Share as much information as you can (both good and bad) with personnel, as appropriate, in compliance with nuclear security considerations.
— Hold formal and informal meetings to keep information flowing both ways and to stress the importance of protecting nuclear and other radioactive material and adhering to nuclear security requirements.
— Develop the skills and capabilities of personnel.
— Provide constructive and timely feedback.

III–6. Managers need to model the behaviour and levels of performance they expect. They can keep current with nuclear security trends and actively and systematically solicit personnel opinions regarding how to improve the morale and performance of personnel and, ultimately, how to enhance nuclear security.

Communication

III–7. Effective communication is key to maintaining a strong nuclear security culture within a facility or activity. To get the expected results, the manager will communicate clearly and with confidence and sincerity. Managers need to be precise and communicate in a manner that will make it easy for others to understand.

III–8. Managers need to make personnel aware of policies and procedures and the importance of following them. Managers need to provide complete and clear directions and expectations, acknowledge individual and group contributions and provide constructive feedback. In the area of nuclear security, managers need to ensure that personnel know which nuclear security roles they are responsible for and consistently embrace the concept that a credible threat exists, that an event could happen at their facility or activity and that they need to do everything possible to prevent such an event.

III–9. One of the keys to personnel performance and job satisfaction is the frequency and quality of personnel interactions with their manager. Work dialogues (e.g. what is said and how it is said to personnel) establish the context for managers to say things that encourage or discourage the quality of subordinates' work, the quality of the product and the relationship with the customer.

Observation

III–10. Observation is a key method of assessment and one way to identify strengths and areas to improve in nuclear security. Managers need to go into the work area to observe and let personnel know that the work they are performing is important. During regular (e.g. weekly) walkthroughs, managers may request feedback from personnel regarding the action plan, nuclear security concerns, and suggested improvements to work processes and the work environment.

Time management

III–11. Managers in the nuclear field need to prioritize responsibilities and the workload to ensure that emphasis is on the most important activities. Managers

can delegate work, as needed, so that they have time to address critical issues in a complete and thorough manner. It is helpful to generate a to-do list that is kept in sight while working. Managers can do the following:

— Update the to-do list regularly (e.g. daily);
— Set priorities on the to-do list using a low, medium and high urgency rating system, for example writing an article on nuclear security culture for the facility newsletter might be a low priority while addressing non-compliance of a nuclear security procedure would be a high priority;
— Leave some uncommitted time;
— Start by determining which tasks may be delegated.

III–12. Managers are responsible for ensuring that those working for them have the appropriate time and resources to perform their assigned tasks.

Conflict resolution

III–13. All personnel experience stress. Stress might be positive (e.g. wedding, birth of a child) or negative (e.g. divorce, illness in the family). When stress impacts personnel, distress can occur. Minimizing conflict in the workplace might decrease motivation for personnel to become an insider who plans a malicious action. Managers may minimize stress in the workplace by applying conflict resolution techniques. To understand the conflict, managers might observe interaction and facilitate communication. Managers need to ask questions and listen to the answers. If the manager has already established a culture of open communication and trust, it will be easier to understand the conflict and invite personnel to work together to find a solution.

Feedback process

III–14. Managers need to continuously encourage personnel to offer suggestions that could improve nuclear security performance. Managers, in return, need to give feedback on personnel performance, often and in a timely manner. When offering feedback, managers can do the following:

— Provide constructive feedback to reinforce expected behaviour;
— Base comments on documentation, facts and observations;
— Avoid relying on hearsay, rumour or second hand reports;
— Make any comments or suggestions privately to the person.

III–15. Managers need to describe the behaviour that is unsatisfactory, rather than judge, and need to encourage all personnel to continuously monitor performance, report problems and apply lessons learned (see paras 3.40 and 3.41 for additional information about training for managers).[1]

REFERENCES TO ANNEX III

[III–1] INTERNATIONAL ATOMIC ENERGY AGENCY, Nuclear Security Culture, IAEA Nuclear Security Series No. 7, IAEA, Vienna (2008).

[III–2] INTERNATIONAL ATOMIC ENERGY AGENCY, Self-assessment of Nuclear Security Culture in Facilities and Activities, IAEA Nuclear Security Series No. 28-T, IAEA, Vienna (2017).

[1] The International Nuclear Security Education Network provides nuclear security culture educational and training resources. Further information can be found at www-ns.iaea.org/security/workshops/insen-wshop.asp.

Annex IV

SAMPLE NUCLEAR SECURITY CULTURE CODE OF CONDUCT

IV–1. Box IV–1 is a sample nuclear security culture code of conduct for personnel.

BOX IV–1. NUCLEAR SECURITY CULTURE CODE OF CONDUCT

Nuclear and other radioactive material that is acquired by criminal or terrorist groups presents a threat not only to national and international nuclear security but also to our community and citizens, including facility or activity personnel and their families. Proper protection of nuclear and other radioactive material, associated facilities and activities, and sensitive information and assets is the responsibility of all personnel. This requires every person's vigilance, not just that of nuclear security personnel or personnel who work directly with nuclear and other radioactive material. All personnel need to understand that nuclear security applies equally to the protection of sensitive information and assets and to the nuclear and other radioactive material or activities themselves.

It is your obligation and responsibility to:

1. Know and follow the laws, regulations and nuclear security procedures and instructions associated with your job.

2. Perform your job in a responsible and rigorous manner, recognizing that improper job performance might compromise nuclear security.

3. Maintain your qualifications at the required level and commit to continual improvement in your job skills and knowledge of nuclear security.

4. Maintain an appropriate questioning attitude regarding every aspect of your job performance. Do not accept or participate in non-standard operations without proper authority. Take responsibility and report job requirements that are not in the best interests of nuclear security.

5. Protect, at all times, your badges, passes, access cards, codes and passwords that provide you with access to the facility or activity, secure areas, computer systems and sensitive information, and report their loss as soon as possible.

6. Respect the work of nuclear security personnel and the guard or response force.

7. Uphold the standards of professionalism and be open and honest in all interactions with colleagues, managers and subordinates.

8. Report immediately any violation or infraction of nuclear security protocols, procedures and instructions, including any inadvertent errors you have made or observed.

9. Report immediately any suspicious events in or around the facility or activity, as well as unusual contacts with facility or activity or non-facility or activity personnel, particularly any inquiries regarding nuclear security measures.

10. Ask questions and challenge assumptions without hesitation to dispel complacency.

Annex V

SETTING NUCLEAR SECURITY CULTURE ENHANCEMENT PROGRAMME GOALS AND DEVELOPING AN ASSOCIATED ACTION PLAN

V–1. The nuclear security culture coordinator, in cooperation with the head of the organization (whether they work for a competent authority with a nuclear security function to regulate or support regulated entities, or for an operator), establishes and records the goals of the nuclear security culture enhancement programme along with expected results and a means of assessing the programme. The nuclear security culture coordinator then identifies actions that will be performed in support of the nuclear security culture enhancement programme and includes them in the action plan. For each action, the nuclear security culture coordinator will document the personnel responsible for carrying out the action, the associated time frame, the resources needed, the potential barriers, the steps to be taken and the expected results. Directions for developing an action plan are provided below, followed by an example.

GOAL

V–2. The goal is to increase the contribution to nuclear security made by personnel using the following means:

(a) Educating personnel on the existence of credible threats to nuclear and other radioactive material and training them on their personal role and responsibility in supporting effective nuclear security;
(b) Training managers to provide them with skills to enhance the work environment and motivate personnel;
(c) Educating and motivating personnel through nuclear security posters.

RESULTS AND ACCOMPLISHMENTS

V–3. A nuclear security culture enhancement programme will aim for specific results and accomplishments such as the following:

(a) Personnel who willingly adhere to all nuclear security procedures;

(b) Managers who communicate to personnel why certain nuclear security procedures are being implemented and motivate personnel to recommend improvements to nuclear security;
(c) Personnel who actively participate in providing recommendations on how to improve nuclear security.

EVIDENCE OF SUCCESS

V–4. The success of a programme can be measured by:

(a) The number of personnel who participate in training sessions;
(b) The number of managers who participate in training sessions;
(c) The number of personnel who submit ideas for poster campaigns;
(d) Feedback from training participants' course evaluation forms;
(e) The number of suggestions on how to improve nuclear security;
(f) Interest from personnel on additional nuclear security topics to include in training.

ASSESSMENT PROCESS

V–5. The programme can be assessed as follows:

(a) Compile feedback from course evaluation forms and summarize the comments to determine the overall effectiveness rating of training and interest in additional training.
(b) Track the number of personnel participating in training sessions and check with the training department on the percentage of personnel who have completed training.
(c) Hold discussions with personnel attending training to get their views on the importance of nuclear security and how they can contribute to it.

DEVELOPING, IMPLEMENTING AND MAINTAINING THE ACTION PLAN

V–6. The steps for developing, implementing and maintaining the action plan are as follows:

(1) Using Tables V–1 to V–3 as a template, document the activities to be conducted for each goal identified. Modify the form as needed to fit your specific environment.
(2) Meet with the head of the facility or activity and obtain their approval to implement the action plan.
(3) Communicate the action plan to personnel, including managers, responsible for aspects of the action plan and throughout the facility or activity, as appropriate.
(4) Keep copies handy to bring to meetings to review and update regularly.
(5) Once the activity has been implemented and has been established for a certain period, assess its effectiveness to check if results were achieved as expected. Note that many activities will need to be performed frequently or repeatedly. These types of activity will have a separate line on the action plan for each time they are conducted. For example, a poster campaign may be conducted each quarter using different posters.
(6) Document the activity's impacts on nuclear security culture and the effectiveness of nuclear security.
(7) Review progress on action plan efforts on a regular basis (e.g. quarterly) and revise as necessary on the basis of new self-assessment results or changes to the facility or activity's mission, nuclear security system, material inventory or threats. Approval from the head of the facility or activity is needed after each revision.

V–7. The following action plan format can be used. The text included in the completed action plan is meant to serve as an example of how nuclear security culture coordinators may use the template to develop their own plan.

TABLE V–1. ACTION PLAN: ACTIVITY 1

Question	Responses
Action: What will be done?	Implement a five day nuclear security culture training for managers.
Responsibilities: Who will do it?	Nuclear security culture coordinator and training department personnel.
Timeline: By when?	1 June 2021.
Resources: (a) What resources are available? (b) What resources are required (e.g. financial, human)?	 (a) Training room, laptop, projector, screen, pens, notepads, whiteboard, refreshments and photocopies. (b) Funds for refreshments, pens, notepads and photocopies.
Potential barriers: (a) What barriers might there be (e.g. legislative, financial, environmental)? (b) How would the barriers affect this activity?	 (a) It is often difficult for managers to take leave for five days to complete training. Is it possible to implement course one day a week for five weeks? (b) Limited participation possible.
Steps: How will it be accomplished?	(1) Generate agenda for training. (2) Send agenda and invitations through email to managers, with enough lead time so that they can block time on their calendars. (3) Implement training.
Expected results: What will be gained?	Managers will acquire tools to improve skills that enhance nuclear security within the facility or activity. In particular, managers will motivate personnel to recommend improvements to nuclear security.

TABLE V–2. ACTION PLAN: ACTIVITY 2

Question	Responses
Action: What will be done?	Develop, print and disseminate five nuclear security culture posters.
Responsibilities: Who will do it?	Nuclear security culture coordinator and graphic arts department or creative personnel with access to a printer.
Timeline: By when?	1 September 2021.
Resources: (a) What resources are available? (b) What resources are required (e.g. financial, human)?	 (a) Graphic arts department or creative personnel with access to a printer. (b) Funds for printing posters.
Potential barriers: (a) What barriers might there be (e.g. legislative, financial, environmental)? (b) How would the barriers affect this activity?	 (a) Graphic arts department or creative personnel might be too busy to take on this project. (b) Funds might not be available for intricate design. Nuclear security culture coordinator might have to print posters from office printer.
Steps: How will it be accomplished?	(1) Send email to facility or activity personnel requesting that they reply with ideas for posters within one month; this activity can be framed as a contest with winners receiving recognition for poster design. (2) Compile ideas for posters, select five poster designs and work with graphic arts department to generate five draft images. (3) Email copies of completed posters to personnel and print and hang posters in central locations in facility or activity.

TABLE V–2. ACTION PLAN: ACTIVITY 2 (cont.)

Question	Responses
Expected results: What will be gained?	(a) The poster campaign will motivate personnel to be creative in drafting ideas for posters, and the five printed posters will act as a visual reminder of the importance of nuclear security. (b) The particular theme of the poster campaign will be focused on the existence of a credible threat and getting personnel to recommend nuclear security improvements.

TABLE V–3. ACTION PLAN: ACTIVITY 3

Question	Responses
Action: What will be done?	Implement two hour general personnel training module.
Responsibilities: Who will do it?	Nuclear security culture coordinator and training department personnel.
Timeline: By when?	1 December 2021.
Resources: (a) What resources are available? (b) What resources are required (e.g. financial, human)?	 (a) Training room, laptop, projector, screen, pens, notepads, whiteboard, refreshments and photocopies. (b) Funds for refreshments, pens, notepads and photocopies.
Potential barriers: (a) What barriers might there be (e.g. legislative, financial, environmental)? (b) How would the barriers affect this activity?	 (a) Manager might not be supportive of personnel taking two hours for the training. (b) Might need multiple sessions so that everyone completes the two hour module.
Steps: How will it be accomplished?	(1) Work with the training department to schedule multiple sessions over a period of time. (2) Send schedule and invitations through email to all personnel. (3) Work with the training department to confirm that all personnel sign up for a session. (4) Implement training.
Expected results: What will be gained?	(a) During training activity, personnel will receive information on credible threats to nuclear and other radioactive material and associated facilities and activities. (b) The training will motivate personnel to take their role in supporting nuclear security seriously and suggest improvements.

Annex VI

EVOLUTION OF NUCLEAR SECURITY CULTURE

VI–1. All organizations involved in the operation of facilities and activities (including the competent authority) may assess the level of nuclear security culture against the stages shown in Table VI–1.

VI–2. Stage 1 is often found when the procedural framework to support nuclear security is first created. As nuclear security culture evolves to Stage 2, the focus is more on internalizing the importance of nuclear security and establishing effective nuclear security as a priority. The third stage corresponds to an emphasis on continual improvement to achieve and sustain effective nuclear security.

VI–3. In Stage 3, it is understood that the human element is vital to the effectiveness of nuclear security. In addition, managers understand the need to develop a workplace that can cope with frequent change (e.g. to the threat). Continual review of the threat and evaluation of the effectiveness of nuclear security measures against the current threat are required. This goal encourages managers to become more receptive to ideas on how to improve nuclear security performance by enhancing the nuclear security culture.

VI–4. These three stages of nuclear security culture evolution might seem simplistic. However, each stage is is not distinct from the others. It is possible at any one time to exhibit characteristics associated with two or three of the stages.

TABLE VI–1. STAGES OF NUCLEAR SECURITY CULTURE

Stage	Focus
1	Nuclear security is based on rules and regulations.
2	Nuclear security becomes an organizational goal.
3	Nuclear security is continually improved.

STAGE 1: NUCLEAR SECURITY IS BASED ON RULES AND REGULATIONS

VI–5. In this stage, nuclear security is seen as an external requirement and not as an aspect of operations that will help the facility or activity to succeed. The external requirements are those of the State, the legal and regulatory framework, and the regulatory bodies. There is little awareness of how personnel's attitudes and behaviour affect nuclear security. Nuclear security is seen as something to be accomplished through compliance with rules and regulations. Some possible characteristics of Stage 1 are the following:

(a) Nuclear security problems are not anticipated, but rather reacted to as each one occurs.
(b) Communication between departments and functional areas is poor.
(c) Collaboration and shared decision making is limited.
(d) Personnel who make mistakes are blamed for their failure to comply with the rules.
(e) The role of management is seen as enforcing the rules.
(f) There is little listening and learning, and criticism is met with a defensive position.
(g) There is an adversarial relationship between managers and their subordinates.
(h) Personnel are rewarded for compliance.

STAGE 2: NUCLEAR SECURITY BECOMES AN ORGANIZATIONAL GOAL

VI–6. In this stage, nuclear security is considered to be an important goal, even in the absence of external requirements. Although there is growing awareness of how attitudes, beliefs and behaviour impact the effectiveness of nuclear security, this aspect is largely missing from security management, which generally concentrates on technical and procedural solutions. Nuclear security is dealt with in terms of goals, with accountabilities specified for achieving the goals. It is often discovered that after a period of time, when nuclear security trends have improved, a plateau of effectiveness is reached. Some possible characteristics of Stage 2 are the following:

(a) There is growing awareness of the impact of nuclear security culture, although it is not understood why added controls and training do not yield the expected nuclear security improvements.

(b) Management encourages interdepartmental and interfunctional communications.
(c) Management's response to mistakes is to introduce more controls and procedures and to provide more retraining.
(d) The role of management is to make sure that goals are achieved and that work objectives are clear to personnel.
(e) There is willingness to learn from external groups, especially new techniques and good practices.
(f) The relationship between managers and other personnel is adversarial, although there might be some opportunities to discuss common goals.
(g) The interaction of personnel and technology is considered, but more from the viewpoint of increasing the efficiency of the technology.
(h) There is some teamwork.
(i) Problems are addressed in a reactive mode, although there might be more anticipation of potential problems in the planning process.

STAGE 3: NUCLEAR SECURITY IS CONTINUALLY IMPROVED

VI–7. In Stage 3, the idea has been adopted that continual improvement is necessary to maintain effective nuclear security and the viability of the facility or activity and competent authority. There is a strong emphasis on communications, training, management style, efficiency and effectiveness. Personnel understand the impact of human factors and nuclear security culture on nuclear security. Some possible characteristics of this stage are the following:

(a) A process is in place to evaluate potential future problems and address them proactively, rather than simply reacting to them as they occur.
(b) Teamwork and cooperation are actively pursued at all levels and across departmental boundaries.
(c) Nuclear security is a priority, and therefore there are minimal conflicts among the goals of safety, nuclear security and mission (e.g. production).
(d) Nuclear security can be improved by continual self-assessment; almost all mistakes are viewed as an opportunity to understand and correct the root cause rather than find someone to blame.
(e) In addition to ensuring compliance with regulations, a process is in place to continually evaluate and improve performance.
(f) Managers show through personal example and direction that they expect workers to look for ways to learn and improve their performance.
(g) Learning from others is valued; processes exist for obtaining, reviewing and applying experience from internal and external sources; frequent

management and other personnel level communication is accomplished with local and national stakeholders involved in nuclear security.

(h) Managers recognize, respect and value personnel for their contribution to nuclear security.

(i) The relationship between managers and other personnel is mutually supportive; personnel are encouraged to make suggestions and are properly recognized for their contributions, while management's role is seen as coaching personnel to improve their performance.

(j) Personnel are aware of the impact and the main principles of nuclear security culture, and these are considered in decision making.

(k) Personnel are rewarded for improving processes as well as achieving results; processes are in place to allow and encourage personnel to report abnormal events as well as recommend enhancements and, when appropriate, to reward them.

(l) Personnel are considered to be an important part of the stakeholder organization, and attention is given to satisfying their needs, not just achieving technical efficiency (see para. 3.51 on the personnel assistance programme, which can also help manage stress).

VI–8. The time required to achieve these stages is variable. Much depends on the commitment and effort that personnel are prepared to make to bring about change. Sufficient time is needed for the benefits from changed practices to be realized and become mature. Change is rarely simultaneous or uniform. A rule based approach does not need to be viewed negatively; there will be circumstances in which strict compliance with rules is essential, such as when responding to an emergency. Nuclear security culture is not incompatible with having strict rules; much of any culture is about complying with rules or conforming to norms.

DEFINITIONS

associated activity. The possession, production, processing, use, handling, storage, disposal or transport of nuclear material or other radioactive material.

associated facility. A facility (including associated buildings and equipment) in which nuclear material or other radioactive material is produced, processed, used, handled, stored or disposed of and for which an authorization is required.

competent authority. A governmental organization or institution that has been designated by a State to carry out one or more nuclear security functions.

human factor. The complex of all individual and collective human physical, psychological and behavioural properties that interact with technological systems, management organizations and natural environments.

nuclear security culture. The assembly of characteristics, attitudes and behaviour of individuals, organizations and institutions which serves as a means to support, enhance and sustain nuclear security.

nuclear security culture coordinator. A person or a group of people officially appointed to lead the effort to enhance the nuclear security culture.

nuclear security culture enhancement group. A group of representatives of the nuclear security stakeholders, as identified by the State or competent authority, that sets the strategy to enhance the nuclear security culture and provides high level oversight of the strategy's implementation.

nuclear security culture enhancement programme. A systematic set of measures designed to continually enhance nuclear security.

nuclear security culture indicator. A nuclear security culture characteristic that can be observed or measured and compared against criteria as a means of assessing the strength of the nuclear security culture.

nuclear security event. An event that has potential or actual implications for nuclear security that must be addressed.

nuclear security regime. A regime comprising:

— The legislative and regulatory framework and administrative systems and measures governing the nuclear security of nuclear material, other radioactive material, associated facilities, and associated activities;
— The institutions and organizations within the State responsible for ensuring the implementation of the legislative and regulatory framework and administrative systems of nuclear security; and
— Nuclear security systems and nuclear security measures for the prevention of, detection of, and response to, nuclear security events.

nuclear security system. An integrated set of nuclear security measures.

operator. Any person, organization or government entity licensed or authorized to undertake the operation of an associated facility or to perform an associated activity.

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Nuclear security culture is defined in the IAEA Nuclear Security Series as "The assembly of characteristics, attitudes and behaviour of individuals, organizations and institutions which serves as a means to support, enhance and sustain nuclear security". This publication is intended to provide practical guidance on implementing a systematic approach to enhancing nuclear security culture. It is provided for use by States, competent authorities with responsibilities relating to nuclear security, and the operators of associated facilities and activities, including managers and other personnel.

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