

## UNDERSTANDING NUCLEAR SECURITY CULTURE

Facilities that possess radioactive materials for medical, industrial, agricultural, research, and educational purposes carry significant responsibilities to ensure that these sources are protected against theft, sabotage, unauthorized access, and malicious use. While physical protection systems and technologies are critical, the human factor remains equally important and this is where nuclear security culture plays a vital role.

Nuclear security culture is defined as the assembly of characteristics, attitudes, and behavior of individuals, organizations and institutions which serves as a means to support and enhance nuclear security.

### Essential components of Nuclear Security culture

There are four (04) essential components that support nuclear security culture at an organization and these are;

- a) **Attitudes:** These refer to an individual's feelings about the organizational policies and procedures. A positive attitude towards organizational policies and procedures enhances good nuclear security culture while a negative attitude severely downgrades nuclear security culture
- b) **Behaviors:** These refer to actions taken by employees in response to their environment that affect nuclear security culture of an organization, whether intentionally or unintentionally. Observed behavior may be adopted by others and may positively or negatively impact nuclear security culture
- c) **Organizational norms:** These are the unwritten rules of conduct in an organization
- d) **Responsibility:** In any well designed security system, each individual has roles and responsibilities to play and these depend on the position and level of access of the individual. Responsibilities also span across different entities whose collaboration will foster a strong nuclear security culture.



*Figure 1: Essential components of nuclear security culture*

**Why nuclear security culture is important**

Inadequate security measures can lead to incidents such as theft or unauthorized removal of sources. Such radioactive sources may then be used in radiological dispersal devices (RDD), and radiological exposure devices (RED) which can cause significant health, environmental and economic consequences. Development of a strong nuclear security culture therefore enables organizations to;

- a) Promote vigilance and accountability among staff
- b) Encourage compliance with regulatory requirements and security procedures
- c) Reduce insider threats and human errors
- d) Improve reporting of suspicious activities and security concerns
- e) Strengthen coordination between management, operators, and regulators
- f) Foster continuous improvement in nuclear security practices
- g) Promote the peaceful applications of ionizing radiation

## Key Elements of Nuclear Security Culture

- a) **Leadership Commitment:** Management plays a central role in setting the tone for nuclear security within an organization. As such, leaders must demonstrate visible commitment to nuclear security by allocating adequate resources, supporting staff training, enforcing and abiding by institutional policies and procedures, and encouraging open communication regarding security concerns. When leadership prioritizes security, employees are more likely to follow suit.
- b) **Personnel Reliability and Competence:** Personnel working with radioactive sources should possess the necessary technical competence and integrity. Regular training, awareness programs, and background checks contribute to personnel competence and reliability. Employees must also understand security risks, recognize suspicious behavior, and know how to respond appropriately during security incidents (This can be achieved through training).
- c) **Clear Policies and Procedures:** Facilities should establish well-defined security policies and operational procedures. These should cover access control, source inventory management, transport security, incident reporting, emergency response, and information protection. Procedures must be regularly reviewed and updated to address evolving threats and operational changes.
- d) **Communication and Reporting:** Management should create an environment where personnel feel confident reporting vulnerabilities, procedural weaknesses, or suspicious activities without fear of blame or retaliation. Effective reporting systems support early identification and mitigation of security risks.
- e) **Continuous Learning and Improvement:** Nuclear security threats evolve over time, making continuous learning essential. Facilities should conduct periodic assessments, drills, exercises, and audits to evaluate the effectiveness of security measures. Lessons learned from incidents and international best practices should be incorporated into organizational improvements.

## **Role of Atomic Energy Council in enhancing Nuclear Security Culture in facilities with radioactive sources**

Atomic Energy Council (AEC) is mandated by the Atomic Energy Act, Cap. 154 to regulate the peaceful applications of ionizing radiation. AEC therefore plays a critical role in promoting nuclear security culture at facilities with radioactive sources. Through development of regulations, conducting inspections, issuing guidance documents, enforcing licensing requirements, and training initiatives, AEC helps facilities strengthen their security practices and maintain compliance with regulatory requirements.

### **Call to action**

Nuclear security is not solely the responsibility of security personnel or management, it is a shared responsibility that depends on the commitment of every individual working with or around radioactive material.

All facilities with radioactive sources are therefore encouraged to invest in regular training on nuclear security culture, promote open communication on security concerns and integrate security considerations into daily operations and decision making processes.